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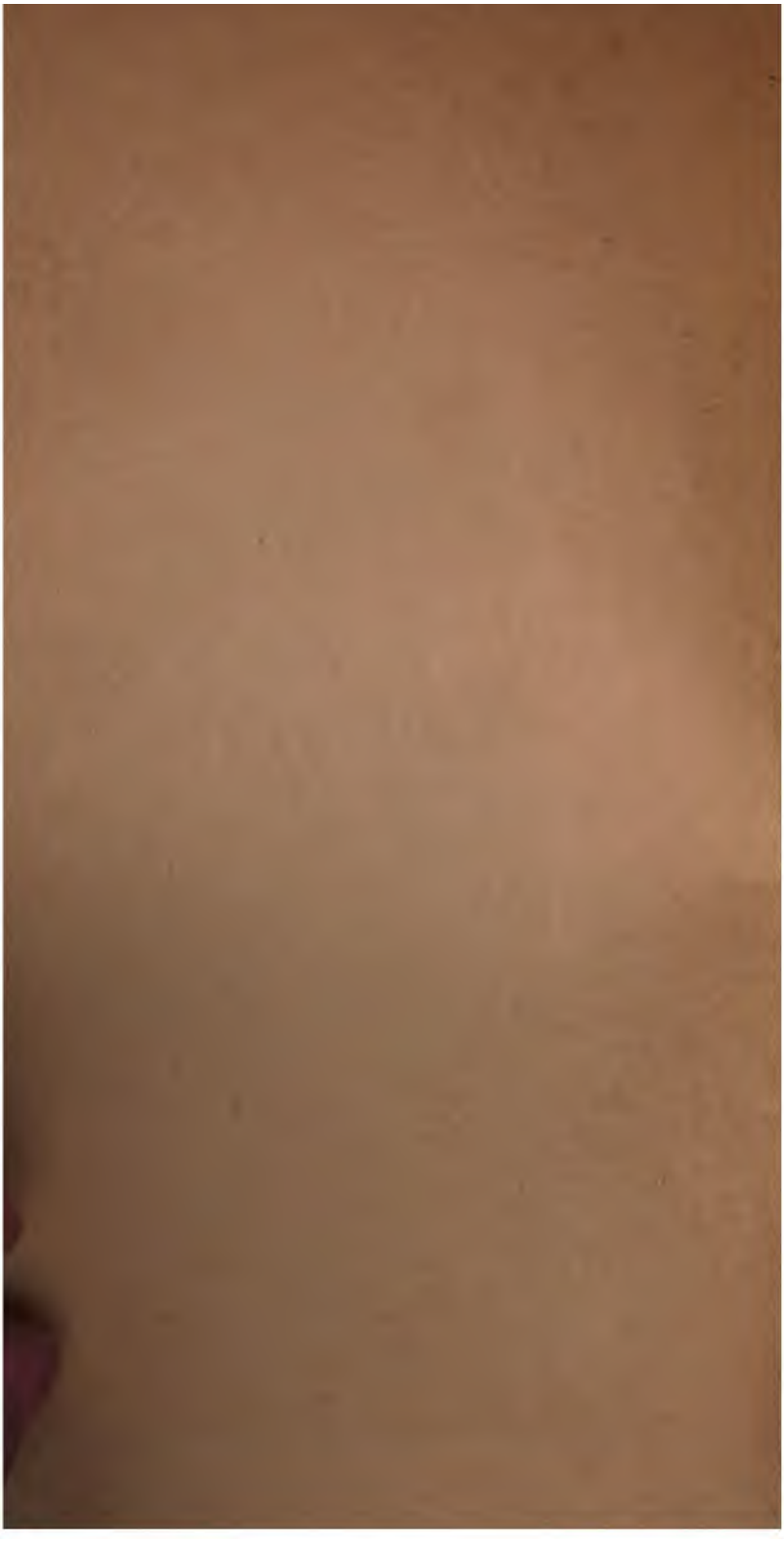

MENTAL DEFECTIVES

BARR

MENTAL DEFECTIVES

THEIR

HISTORY, TREATMENT AND TRAINING

BY

MARTIN W. BARR, M.D.

CHIEF PHYSICIAN PENNSYLVANIA TRAINING SCHOOL FOR FEEBLE-MINDED CHILDREN, ELWYN, PA.

Illustrated by 53 Full Page Plates

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TO THOSE WHOM THE FRENCH HAVE SO TOUCHINGLY NAMED

LES ENFANTS DU BON DIEU,

AND TO

A MOTHER DEEPLY INTERESTED IN THEM,

THIS WORK IS DEDICATED

FOREWORD.

The studies herein presented—several of which have appeared from time to time in various journals—have been written in response to many inquiries that have come to me regarding mental defectives.

The result of an experience of almost twenty years in carrying forward principles of treatment and of training, tested, proven and defined—it addresses itself primarily to anxious parents and to earnest teachers, rather than to the scientist. No effort has been spared to render the statistics accurate, and the statements trustworthy, all doubtful data having been unhesitatingly discarded. In endeavoring to emphasize the utter hopelessness of cure, and also the needless waste of energy in attempting to teach an idiot, I have sought to make clear the possibilities that may be attained in the training of the imbecile, the urgent need of preventing the backward child from degenerating into imbecility, and of safeguarding the absolutely irresponsible *ammoral* imbecile from crime and its penalty.

Some subjects I have not touched upon at all for obvious reasons, nor have I dwelt at any length upon the stigmata of degeneration. Sexual inversion is not a subject to present to the general reader, and researches into both the psychology and pathology of idiocy have yet to gather sufficient data upon which to base dogmatic opinion.

My acknowledgments are due to my immediate associates as well as to many colaborers in the work at large, whose experience has aided me in substantiating theories, in working out basic principles, and in verifying conclusions. In this last my three "boys" have materially contributed, in addition to the aid gladly and efficiently rendered in the preparation of the book; many of the photographs by Jake, the translations by Arthur, and the entire typewriting of the manuscript by Judson, all being an exposition of the main argument —the possibilities to be attained through training.

MARTIN W. BARR.

PENNSYLVANIA TRAINING SCHOOL FOR FEEBLE-MINDED CHILDREN, ELWYN, PA., August 1, 1904.

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MENTAL DEFECTIVES.

CHAPTER I.

SYNONYMS AND DEFINITIONS.

Synonyms.

Through all ages, in many climes, we may trace the close analogy in many tongues, of the various titles of mental defect, thus:

Greek.—Iditas; idios.

Latin.—Amentia; fatuitas; imbecillitas.

Italian.—Idiotismò; tardivi.

Spanish.—Idiota; idiotismò; tardo.

Portugese.—Idiota; idiotismo; imbecilidade; imbecil; tardo.

French.—Idiote; imbecile; les enfants du bon Dieu; les enfants arriérés; démence innée; idiotisme; béganne (Island of Jersey).

German.—Geistig zurück gebliebene; congenitale oder angeborener Blödsinn und Dummheit; die Spracheigenheit.

Scandinavian.—Aandelig abnorme; sinueslö; idiot.

Japanese.—Hakuchi.

Scotch.—The daft bairn; the innocent; the feckless.

English.—Idiot; imbecile; backward; feebly-gifted.

American.—Idiot; imbecile; backward; feebly-gifted; feeble-minded.

Definitions.

The terms idiot and imbecile indiscriminately applied for centuries to a despised and neglected class, have naturally, through the mere force of association, become synonymous with and even expressive of opprobrium and reproach. So closely welded has been this association of word and idea, that even the advance of the nineteenth century with all its revelation of true conditions has failed to sunder them. Viewed apart from this association the expressions idiot and imbecile really do indicate certain conditions now, as clearly

as did the words in the original languages from which they are derived, as may be easily seen by comparison.

The word **idiot** is derived from the Greek *ἰδιώτης*, "a private person," or *ἴδιος*, "peculiar"—*i. e.*, a person devoid of understanding from birth—incapable of holding communication with another, therefore set apart—alone.

The term **imbecile** is taken from the Latin imbecillis—*in* and *bacillum*, as "needing a staff"; or *in vacillo*, "tottering," "wanting strength of mind," "weak and feeble"; expressive of a certain degree of intelligence, but unstable, incapable, irresponsible.

The idiot intelligently sees nothing, feels nothing, hears nothing, does nothing, and knows nothing. He simply lives alone—the solitary one.

The imbecile, on the other hand, is able to see, to understand, and to discriminate in greater or less degree.

Another phase of mental defect either previously unrecognized or else belonging specifically to a later period has developed the term "Backward-child"—one unable to advance rapidly. The differences we note, are of degree not of kind. In reality from the idiot, through the various grades of imbecility, up to the backward and the feebly-gifted there is a regular ascending scale ever-lessening of mental defect.

In America the tendency to draw away from those terms which, however correct in derivation and signification yet preëmpted and warped through long usage, fail to convey the exact idea apart from one of contumely, has resulted in the adoption of the expression "feeble-minded," covering every form of mental defect; and of "backward" and "feebly-gifted," for the lesser phases. This for general purposes is more in accord with popular sentiment, although for practical purposes and in scientific classification, the older and more precise terms are still adhered to.

Again the terms idiocy and imbecility are often erroneously considered synonymous with insanity. It is true that certain conditions of idiocy and imbecility do resemble that phase of insanity known as dementia—a reversion to the original mental state of childhood—in reality a form of second childhood. But the states are not identical, although one may lapse into the other. One is defect, the other

disease; the imbecile in the former being the counterpart of the dement in the latter, just as the moral imbecile is the analogue of the paranoiac.

Ireland says: "Dementia begins with average intelligence which gradually diminishes; idiocy begins with a low amount of intelligence, which gradually increases." Spitzka says: "Imbecility is a deficiency of the brain, with permanent impairment of the intellectual faculties," whereas "Insanity is a mental condition, the result of brain disease, affecting the integrity of the mind, characterized by intellectual or emotional disorder."

According to the old Roman law, mental defectives were designated "*mente capti,*" or those deficient in intellect.

Lord Coke's definition is: "An idiot is one who from his nativity, by perpetual infirmity, is *non compos mentis.*"

Blackstone says: "An idiot, or natural fool, is one that hath no understanding from his nativity, and therefore is by law presumed never likely to attain any."

Another legal definition is the following: "He that shall be said to be a sot and idiot from his birth, is such a person who cannot count or number twenty pence, nor tell who was his father or mother, nor how old he is, so as it may appear that he hath no understanding or reason what shall be for his profit or what for his loss; but, if he have sufficient understanding to know and understand his letters, and to read by teaching or information, then it seems he is not an idiot."

Shakespeare speaks of him as: "One who holds his bauble for his God"; and, again: "One who tells a tale full of sound and fury, signifying nothing."

Esquirol was the first medical writer who clearly defined the term idiocy, and he restricted its use to congenital mental defect. He says: "Idiocy is not a disease, but a condition in which the intellectual faculties are never manifested; or have never been developed sufficiently to enable the idiot to acquire such an amount of knowledge as persons of his own age, and placed in similar circumstances with himself, are capable of receiving. Idiocy commences with life, or at that age which precedes the development of the intellectual and effective faculties, which are from the first what they are doomed to be during the whole period of existence." He observes further:

"Dementia and idiocy differ essentially. . . . A man in a state of dementia is deprived of advantages which he formerly enjoyed. He was a rich man, who has become poor. The idiot, on the contrary, has always been in a state of want and misery." (*L'homme en démence est privé des biens dont il jonissait autrefois, c'est un riche devenu pauvre. L'idiot a toujours été dans l'infortune et la misère.*)

Seguin, in speaking of the idiot, says: "That the will sits, like the lady in Comus, locked up in alabaster." He defines idiocy as: "A specific infirmity of the craniospinal axis, produced by deficiency of nutrition *in utero* and in *neo-nati.*"

Dr. Howe says: "Without pretending to any scientific accuracy, idiocy may be defined to be that condition of a human being in which, from some morbid cause in the bodily organization, the faculties and sentiments remain dormant or undeveloped, so that the person is incapable of self-guidance and of approaching that degree of knowledge usual with others of his age.

"There are different degrees of idiocy. There is the *absolute idiot* —the unfortunate creature who has hearing, but seems not to hear; sight, but seems not to see; who never learns to talk; who cannot put on his own clothes or feed himself or do the simplest thing."

"There is the *imbecile* who cannot take care of himself at all, but can do pretty well under the direction of others. There is the *simpleton* who thinks he is a man, and who hangs on the skirts of society, the victim of some and the butt of others. . . . It may be supposed, from the tenor of our remarks, that we are not much disposed to draw any sharp line of distinction between idiots and other human beings, and still less disposed to deny them the attributes of humanity, and sink them to a level with the brutes. . . . We maintain that they have the germs of human faculties and sentiments, which in most cases may be developed. Indeed, the number of persons left by any society in a state of idiocy, is one test of the degree of advancement of that society in true and Christian civilization. Precise unexceptionable definitions are exceedingly difficult. But we must, at any rate, regard idiocy and imbecility as a *condition* varying in degree, rather than a *disease,* and it is concomitant of defective physical organization."

PLATE I.

ECHOLALIA.

Again Howe defines mental defectives as: "Pure idiots, fools and simpletons, or imbeciles as they are sometimes called." He goes on to say: "If a boy at ten or twelve years of age (or even six or eight) *hears,* and does not speak, it is *prima facie* evidence that his intellect is in an undeveloped state. It furnishes a strong probability of *idiocy.*"

"If he can merely use nouns,—the names of things,—he is probably *foolish.*"

"If he can construct and understand simple sentences, but cannot use or apprehend involved and complicated ones, he is merely a *simpleton.*"

"The ability to use polysyllables would not raise him above the second grade. In using the name of a person or thing the number of syllables does not add much to the complexity of thought or difficulty of utterance."

"A better test is the substitution of pronouns for nouns. A little child, or a fool, would say, for instance, 'Willie want water,' while a simpleton would say, 'I want water.'"

"A simpleton can hardly make a complicated sentence, such as the following: 'Should it be fair to-morrow, and my father consent, I will either come to see you, or send my brother.' The use of the conjunction disjunctive is always difficult for persons of feeble mental organization."

"*Idiots* of the lowest class are mere organisms, masses of flesh and bone in human shape, in which the brain and nervous system has no command over the system of voluntary muscles; and which consequently are without power of locomotion, without speech, without any manifestation of intellectual or affective faculties."

"*Fools* are a higher class of idiots, in whom the brain and nervous system are so far developed as to give partial command of the voluntary muscles; who have consequently considerable power of locomotion and animal action; partial development of the affective and intellectual faculties, but only the faintest glimmer of reason, and very imperfect speech."

"*Simpletons* are the highest class of idiots, in whom the harmony between the nervous and muscular system is nearly perfect; who consequently have normal powers of locomotion and animal action;

considerable activity of the perceptive and affective faculties; and reason enough for their simple individual guidance, but not enough for their social relations."

Other definitions read thus:

"Idiocy is the want of a natural or harmonious development of the mental, active and moral powers of a human being, and usually dependent upon some defect or infirmity of his nervous organization." Wilbur.

"Idiocy is that condition of the mind, in which the reflective, and all, or part, of the affective powers, are either entirely wanting, or are manifested to the slightest possible extent." Ray.

"Idiocy is mental deficiency occurring during infancy or the early periods of life." J. Langden Down.

"Idiocy is mental deficiency, or extreme stupidity, depending upon malnutrition or disease of the nervous centers, occurring either before birth or before the evolution of the mental faculties in childhood. Imbecility is generally used to denote a less decided degree of mental incapacity. The term feeble-minded is now much used in the United States of America, both in legal and medical documents, to denote both idiots and imbeciles." Ireland.

"Imbecility is simply weakness of mind, owing to defective mental development, and may be of every degree of deficiency, moral and intellectual; on the one hand, passing by imperceptible gradations into idiocy, and, on the other hand, passing insensibly into ordinary intelligence. There are some individuals in whom a general deficiency of intelligence is accompanied by a singular development of it in a special direction; they manifest, for instance, a surprising memory for details, such as dates, names, numbers, the exact particulars of distant events, which they recall and recount with the greatest ease and accuracy, or display certain remarkable mechanical aptitudes, or exhibit a degree of cunning which might seem inconsistent with their general mental feebleness."

"Idiocy is a defect of mind which is either congenital or due to causes operating during the first few years of life, before there has been a development of the mental faculties, and may exist in different degrees; the person affected with it may have the power of articulate speech and manifest a limited degree of intelligence, or he may be

utterly destitute of any semblance of intelligence and of the power of speech, being little more than a vegetative organism." Maudsley.

A definition which I have, in long usage, found most readily understood, and which I have tried to make inclusive and comprehensive as well as simple and concise, is this: Feeble-mindedness, including idiocy and imbecility, is defect either mental or moral or both, usually associated with certain physical stigmata of degeneration. Although incurable, its lesser forms may be susceptible of amelioration and of modification, just in proportion as they have been superinduced by causes congenital or accidental.

CHAPTER II.

HISTORY.

By the Ancients mental defectives were regarded as objects of derision, aversion, or persecution. The awful appellation "idiot" not only inspired horror and disgust, but meant, for the unfortunate, a forfeiture of all human rights and privileges. So, in the belief that these hapless ones were accursed of the gods, or in an effort to preserve, at whatever cost, the integrity of the race, the practice became common, and still exists among certain nations, of allowing the mentally deficient to perish, or, as was done in Sparta, of directly exposing them to death-peril; here the feeble-minded, sharing the fate of weakly children, were thrown into the Eurotas.

Traces of this custom, found in the laws of Lycurgus, were not confined to Sparta alone. Cicero intimates its existence among the Romans. At the present day a similar custom exists among certain of the South Sea Islanders, and is common, likewise, among a tribe of American Indians distinguished for their intelligence, strength, and physical beauty. This effort to preserve a healthy race, cruel as it may seem in individual cases, is, after all, but a following of natural law; the buds unfit to mature, fall—the weaklings of the flock perish.

Of those who, in ancient days, by chance escaped these drastic measures, we find mention now and again; but plainly as set apart, hedged about by ridicule or scorn, and tolerated only for the sake of diversion and amusement. Such were found in the houses of Romans of rank. Seneca speaks of a blind imbecile—*fatua,*—who belonged to his wife.

That some have escaped both conditions and, by a freak of fortune, have filled exalted positions is not to be questioned; others than Nero, Commodus, and Elagabalus have worn the royal purple.

The dawn of Christianity, when sorrowing mothers brought to the Great Physician their demoniac sons, was for the idiot the first gleam of beneficent commiseration and divine pity; and the charge

Case A.

Case B.

ADENOMA SEBACEUM.

PLATE II.

of St. Paul to "comfort the feeble-minded" is believed by some to apply more to these unfortunates than to those weak in the faith. In direct accord with this, three hundred years later, when Constantine Magnus was Emperor of the West, do we find the good Bishop of Myra (the St. Nicholas of the children of to-day) recognizing and tenderly caring for the idiot and the imbecile, and the noble Euphrasia, closely allied to the imperial household of Theodosius, retiring at the tender age of twelve to the convent of Thebiad, to take up the same good work.

As fools or jesters, in mediæval times they had the freedom of the castles of the great; or regarded as "les enfants du bon Dieu," they wandered unmolested in Europe as in the Orient. Again, viewed with superstitious reverence and even fear as being mysteriously connected with the unknown, the house into which an imbecile was born was considered blessed of God. Proof of this commonly accepted belief that these creatures walked on earth but held their conversation in heaven, is shown in the fact that Tycho Brahe had for his close companion a fool, to whose mutterings the great astronomer listened as to a revelation. Among the Turks of to-day, and in many parts of Ireland and of Brittany, this same extravagant idea regarding these "innocents" prevails. In Brazil an imbecile in a family is considered more a joy than a sorrow; rich and poor alike roam the streets undisturbed, soliciting alms which are never refused; in this way, among the poor, an idiot may be the sole support of a family. The American Indian, also, allows these "children of the Great Spirit" to go unharmed.

Confucius and Zoroaster in their writings both enjoin a tender care of these unfortunates, and the Koran gives this special charge to the faithful: "Give not unto the feeble-minded the means which God hath given thee to keep for them; but maintain them for the same, clothe them, and speak kindly unto them."

During the reign of Edward II. we find it enacted that: "The King shall have the custody of the lands of natural fools, taking the profits of them without waste or destruction, and shall find them their necessaries, of whose fee soever the lands be holden; and after the death of such idiots, he shall render the same to the right heirs, so that such idiots shall not aliene, nor their heirs be disinherited,

and a portion shall be distributed for his soul by the advice of the Ordinary."

Yet ever misunderstood, appearing always as shadows in the brightest spots of human civilization, for them, the pendulum again swings backward; persecution follows close upon the steps of superstition, and even in the days of the reformation we find Martin Luther and Calvin denouncing them as "filled with Satan."

Although many individual acts of kindness may have passed unnoticed during the lapse of ages, the first intimation of organized effort is found recorded in the middle of the seventeenth century; its birth-place France, and its cradle the Bicêtre, the present large asylum and hospital of Paris. Obtaining from Anne of Austria permission to use as an asylum for foundlings, this ancient chateau, upon the ruins of which Richelieu had begun the foundation of a military hospital, St. Vincent de Paul and his *Confrérie de Charité* gathered there the children from the city and the provinces—the homeless, the outcast, the feeble alike in mind and body.

While these devoted *Lazarites* were gathering together, sheltering, and striving to ameliorate the condition of imbeciles in France, Juan Pablo Bonnet in Spain was seeking to benefit another class—the deaf-mute; his manual alphabet and book, entitled "*Reduccion de las Letras, y arte para enseñar á hablar los mudos,*"[1] destined, in another age, to give to deaf-mutes a language, and to be the guide and open sesame to that physiologic education that should unlock the walls of deadened sense to all classes of defectives.

The eighteenth century was undoubtedly the age of physiologic, as the nineteenth was of psychologic research. While Boerhaave, in the University of Leyden (1701–1731), Morgagni, in the University of Padua (1712–1771), and Haller, in the University of Göttingen (1736–1753) were demonstrating its value to their classes, philosophy and the various branches of anthropology were advancing in the new light, and education found in it the key to a true renaissance.

Jean Jacques Rousseau, in his daring attack upon old systems, in his book "Emile" a revelation of the new, stands as the acknowledged herald of reform in education. Behind him, however, is one

[1] Madrid: 1620.

to whom France has been most chary in awarding praise; one who, by his power of reducing well-defined theory to logical practice, far surpassed that more brilliant, but most inconsistent and erratic genius. Outside the literature of the deaf and dumb, one hears but little mention of Jacob Rodrigues Péreire. A Hebrew of the Hebrews, this man, in his many sidednesses, seemed prepared to be "all things to all men" if thereby he might aid one. His varied gifts make him a fitting type of an age of discovery, and of the three representative nations of that age that bestowed them. Portugal, Spain, and finally France, the country of his adoption, had each a share in molding the man in whom religion, philanthropy, and science—mathematical, physical, social, and philologic—united, stimulated by enthusiasm, and tempered by a prudence and modesty that were truly admirable. Through his able biographer, M. Ernest La Rochelle, we learn of his curious problems in calculus and mechanics, which in our age might, possibly, have placed him foremost among inventors. An adept in the art of finance, his skill as a negotiator often succeeded in preventing or ameliorating the misfortunes of his race, and it was this same intense sympathy that led him to lend his powers as linguist and philosopher to the cause of the deaf-mute. Using, as a means of communication with his pupils, Bonnet's alphabet, to which he soon added some forty signs of his own, he finally evolved for them the power of oral speech. Great as was the benefit to these unfortunates, the gain to science was greater.

The key-note of a true physiologic education was struck, when he demonstrated that all the senses are modifications of the single sense of touch; the spectacle of his deaf-speaking pupils winning from Buffon the acknowledgment that "Nothing could show more conclusively how much the senses are alike at the bottom, and to what point they may supply one another." This was the mission he fulfilled to education in general; to defectives, however, his power was even more far-reaching. Seguin tells us that "Péreire analyzed speech into two elements: the sound, and the vibration which produces it; the first which the ear alone can appreciate, the second that any flesh vibrating itself may be taught to perceive. He conceived that ordinary men hear the sound, without, most of the time, noticing the vibrations; but that the deaf, who cannot hear the sound, may never-

theless be made the recipients of vibrations. Hence, a given vibration producing only a given sound, the deaf taught to perceive the vibration, could not imitate it without reproducing likewise the corresponding sound of language. It is thus that he practically made his pupils hear through the skin, and utter exactly what they so heard." Again, as M. Léon Vaïsse clearly shows: "The true explanation of Péreire's success in his self-imposed work of education should be sought in the meditations of the philosophical instructor upon the manner of action of the human mind, and upon the development of language in childhood independently of the material form in which the language itself is clothed. Saboureux de Fontenay, when his pen conveyed so exactly the delicate shades of his thought, rendered to his master an homage not less brilliant than did Mlle. Marois when she succeeded so well in the faculty of speech which his patient and intelligent endeavors had restored to her."

Péreire, therefore, in teaching these unfortunates the art of thinking, is not only the first educator of deaf-mutes, but the forerunner of Valentine Haüy to the blind, and of Seguin to mental defectives. At once an exposition and an inspiration to Rousseau and to Itard, the former a close observer in his school in Paris, his influence must have been as marked in the creation of Rousseau's "Emile" as it was later upon Itard in his experiment with "the Savage of Aveyron," which led to the successful demonstration, by Esquirol, Ferrus, Voisin, Seguin, Vallée, and others at the Bicêtre, of possibilities in the training of mental defectives.

It would seem, therefore, that we are justified in calling France the birth-place of the new education, for we find in Paris, at the close of the eighteenth and at the opening of the nineteenth century, this rare grouping: The establishment of the first school where deaf-mutes were taught to speak orally; the publication of the first treatise on education, whose object was to educate in the true sense of the word; the first successful demonstration of the possibility of educating an idiot by physiologic means with a philosophic aim. That the last was accidental, detracts in no wise from its value. It was a discovery, and Itard—although unwittingly—the discoverer of a reflective power in idiots that once awakened, might be trained. Thus, as Seguin says: "The idea of finding

modes of training natural and yet powerful enough to bring into physiologic activity impaired functions and even atrophied organisms, did not come directly into the human mind. Like nearly all discoveries, it came by side views of the problem, till a man looking at it in full face solved it by a mighty effort."

In France, in 1798, a boy between eleven and twelve years of age was seen in the woods of Caune, in the Department of Aveyron, seeking for acorns and nuts. He was caught by a party of sportsmen and brought to Paris, where his education was undertaken by Itard, who labored with him for five years. Interesting alike to both history and science, he is the only one of eleven wild children whose story is not enshrouded more or less in legendary or traditional lore. Of these, Seguin gives the following interesting data:

"We owe to the great Linnæus a list of ten of these phenomena, which he, curiously enough, considered as forming a variety in the genus Homo. We are indebted to Bonaterre, Professor of Natural History in the Central School of the Department of the Aveyron, France, for his quotation of it, for curious researches upon each one of these ten savages, and for his own notice of the eleventh, 'the Savage of the Aveyron.' We transcribe from our own copy of that extremely rare pamphlet.

"1. JUVENIS LUPINUS HESSENSIS. 1544. (A young man found in Hesse among wolves.)

"2. JUVENIS URSINUS LITHUANUS. 1661. (A young man found among bears in Lithuania.)

"3. JUVENIS OVINUS HIBERNUS. Tulp. Obs. IV. (A young man found among wild sheep in Ireland.)

"4. JUVENIS BOVINUS BAMBERGENSIS. Camerar. (A young man found among herds of oxen near Bamberg.)

"5. JUVENIS HANNOVERIANUS. 1724. (A young man found in Hanover.)

"6. PUERI PYRENAICI. 1719. (Two boys found in the Pyrenees.)

"7. PUELLA TRANSISALANA. 1717. (A girl found in the Dutch Province of Over-Yssel.)

"8. PUELLA CAMPANICA. 1731. (A girl found in Champagne and since named Mlle. Leblanc.)

"9. JOHANNES LEODISENSIS. Boerhaave. (John of Liège.)
"10. PUELLA KARPFENSIS. 1767. (The girl of Karpfen.)
"11. JUVENIS AVERIONENSIS. Anno Reipublicæ Gallicæ octavo. (The savage of the Aveyron, in the year eighth of the French Republic.)"

This last Professor Bonaterre represents as unaccustomed to our food, and as selecting his aliment by the sense of smell; lying flat on the ground, and immersing his chin in the water to drink; tearing all sorts of garments, and trying constantly to escape; walking often on all fours; fighting with his teeth; giving few marks of intelligence; having no articulate language, and even appearing devoid of the natural speech; complaisant and pleased at receiving caresses. The Professor thought "a phenomenon like this would furnish to philosophy and natural history important notions on the original constitution of man, and on the development of his primitive faculties; *provided that the state of imbecility we have noticed in this child does not offer an obstacle to his instruction.*"

The revolt from the old system of education had naturally given rise to many schools of thought. Of these, one of the most radical in France, influenced probably not a little by the Revolution, was that of the sensualists (according to later views and in order to avoid misconception this might, perhaps, be better translated sensorists), who, believing that all ideas were derived immediately from the senses, taught that mental perceptions were but sensations transformed. According to their theory, certain ideas were generated through the repetition of certain sensations, and, as the result of this persistency, a given character was produced—a sort of hybrid humanity, so to speak—if the bent of the subject had not become biassed or warped by previous impressions.

The sudden advent of the wild boy of the woods was, therefore, for these savants a golden opportunity for reducing this theory to practice, and none so qualified for this task as their *confrère*, Itard, Physician to the School for Deaf-Mutes, versed in theory and practice of the physiologic education first demonstrated by Péreire and now so successfully carried forward by Abbé de L'Epée and Abbé Sicard.

Thus the savage of Aveyron might be likened to a guide-post read-

ing two ways. Standing at the beginning of the nineteenth century, a literal symbol of the parting of ways for his caste, in this uncouth figure is represented all the cruelty of the past and the beneficent influences of a new era. The last of those of whom history or tradition speaks as, either through neglect or through wilful desertion, driven from the haunts of men; he is also the first example recorded of an idiot reclaimed from the life of a mere animal to be trained to a human existence.

Accepting at the hands of Bonaterre this phenomenon that was to "furnish to philosophy and natural history important ideas on the original constitution of man," and too enthusiastic to heed the warning concurred in by Pinel, Physician in Chief to the Bicêtre, "provided that the state of imbecility we have noticed in this child does not offer an obstacle to his instruction," Itard gladly entered upon a task that was to prove the theories of De Condillac and the creed of the sensualists, in a program fitted to cover all the steps from savagery to civilization. Thus he was:

"1. To endear him to social life, by making it more congenial than the one he was now leading; and, above all, more like that he had but recently quitted.

"2. To awaken his nervous sensibility by the most energetic stimulants; and at other times by quickening the affections of the soul.

"3. To extend the sphere of his ideas, by creating new wants, and multiplying his associations with surrounding beings.

"4. To lead him to the use of speech, by determining the exercise of imitation, under the spur of necessity.

"5. To exercise, during a certain time, the simple operations of his mind upon his physical wants; and therefrom derive the application of the same to objects of instruction."

Fortunately, Itard was too warm a humanist to be a mere cold scientist. Profoundly interested in his pupil while studying his needs and striving to supply them, alternately analyzing and synthesizing, he modified his treatment gradually into the physiologic methods suited less to the savage and more to the defective. This he finally recognized, although he did not formally admit it, and in the bitterness of disappointed hope he exclaimed: "Unfortunate! Since my

pains are lost and my efforts fruitless, take yourself back to your forest and primitive tastes; or, if your new wants make you dependent on society, suffer the penalty of being useless, and go to Bicêtre, there to die in wretchedness."

Firm in his conviction of the incurability of idiocy, a conviction shared by Pinel, knowing nothing of the grades of imbecility, he naturally failed to see the intermediate steps of educability that he himself had demonstrated. Nevertheless, in his report of the work, he does recognize that he had " made a collection of facts capable of enlightening the history of medical philosophy, the study of uncivilized man, and the direction of certain kinds of private education."

This modest statement of disappointed efforts meets with the fullest recognition of results attained, in the indorsement of the French Academy as follows: " This class of the Academy acknowledges that it was impossible for the institutor to put in his lessons, exercises, and experiments more intelligence, sagacity, patience, courage; and that if he has not obtained a greater success, it must be attributed not to any lack of zeal or talent, but to the imperfection of the organs of the subject upon which he worked. The Academy, moreover, cannot see without astonishment how he could succeed as far as he did; and think that to be just towards M. Itard, and to appreciate the real worth of his labors, the pupil ought to be compared only with himself; we should remember what he was when placed in the hands of this physician, see what he is now; and more, consider the distance separating his starting-point from that which he has reached; and by how many new and ingenious modes of teaching this lapse has been filled. The pamphlet of M. Itard contains also the exposition of a series of extremely singular and interesting phenomena of fine judicious observations; and presents a combination of highly instructive processes, capable of furnishing science with new data, the knowledge of which can but be extremely useful to all persons engaged in the teaching of youth." Here Itard retires from our view, and, in the office of private instructor, applies himself to those " certain kinds of education " before alluded to.

His mantle falls upon one well fitted to systematize his views, to adapt them to the treatment of idiots at large, and to develop from

them the methods for the education of mental defectives since spread broad-cast in all lands. This man was his pupil, Edward Seguin.

With implicit faith in the discovery that Itard had unwittingly made, Seguin, in 1837, in a private school in Paris, entered upon the task, openly avowed, of educating the idiot.

Building upon the theories so ably demonstrated, modifying and adapting them directly to the needs of his pupils as experience dictated, he succeeded in building up a system of training, the excellence of which as certified to by Esquirol, won for him, in 1842, the directorship of the school for idiots at Bicêtre, organized in 1828 by its chief physician, Dr. Ferrus, President of the Academy of Medicine and Inspector General of the Lunatic Asylums of France, and enlarged in 1839 under the superintendence of Dr. Voisin. Ferrus' example had been followed by Dr. Falret at the Salpêtrière in 1831. Seguin's work at Bicêtre, the result of which he published in two pamphlets, won encomiums from the committee of the hospital, and later the indorsement of the French Academy of Sciences. Within a year, however, personal difficulties with the authorities terminated his engagement, and, leaving the work under the able direction of M. Vallée, to be continued along the lines that he had established, he retired, to devote himself again to private pupils and to the preparation of his work on idiocy, "*Théorie et pratique de l' éducation des idiots,*" the initial, one might say, to all after-bibliography on the subject, which, honored by the French Academy, elicited an acknowledgment from Pope Pius IX., for the service the writer had thus rendered mankind.

Itard and Seguin represent two practical agents developing diverse schools of thought. The theories of Condillac, the master and friend of Itard, that: "the faculties of our mind are but our sensations transformed," and that "all simple ideas are the result of sensation alone," even with so ardent an exponent as Itard, failed to realize and have long ago been rejected.

Itard's trustworthy and persistent experimentation, however, revealed a fact never before suspected, viz., that idiots, who were heretofore accounted, even by such men as Pinel and Esquirol, "human brutes" or "beings devoid of understanding and heart," possessed

a reflective intelligent power that might, if once awakened, be educated.

Seguin, closely observing this experiment, naturally recognized the value of this result more fully than did Itard, who while working to demonstrate a different idea, was overwhelmed by disappointment.

Seguin, starting out with this fact established for him, studying the child and adapting work to his needs, as we have seen, formed and successfully worked out the theory really enunciated by Locke[1] and universally accepted to-day, of an intermediate step—a connecting link between sensation and idea; not only the existence of, but the necessity for, an internal intelligent reflecting power that, seizing the notions of external objects as furnished by the senses, reasons upon them and produces ideas; thus the senses are the immediate agents of notions, the intelligence the immediate agent of ideas, the process being from external objects by the medium of sensations to notions, and from notions by the medium of the intelligence to ideas.

The results of Seguin's experience, the necessary requirements and the program of education, are briefly embodied by him in the following clearly expressed abstracts.

The necessary conditions for the improvement of imbeciles are that "the *treatment* be not only hygienic, but moral; that the *education* be not the putting in action of acquired faculties, which is the education of the common schools, but the development of the functions, of the aptitudes, of the faculties, and of the instinctive and moral tendencies." These are to be first ascertained by a careful physiologic and psychologic examination or analysis of each case and the program of education follows:

"1. The moving power.
"2. The senses.
"3. The perceptive faculties.
"4. By gymnastics of comparison.
"5. By gymnastics of invention.
"6. Excitement of sentiments and instincts by normal necessities.
"7. Special excitation of the faculty of spontaneousness.

[1] Locke, The Human Understanding, Bk. II., chap. I., sec. 4.

"8. Incessant provocation to regular action, to speaking, and to the exercise of faculties then developed.

"The aptitudes thus created are then applied to different specialties, according to the fortune, age, or position of each individual, taking care to choose, in every case, an occupation which will keep in activity the muscular system as well as the mental faculties."

It is curious to note how with nations as with individuals, a pioneer in a work is rarely the one to reap direct advantage. This fact is patent in the case of each of the individuals we have been considering.

France, the country that nourished and gave to the world a Péreire, a Rousseau, an Itard, and a Seguin, is still years behind other nations in the matter of bestowing free education and has, with one exception, made no extended provision for mental defectives. This single exception exists in the wonderful work of John Bost and his colony at La Force, near Bordeaux. In thirty-four years—from 1846 to 1880—this remarkable man compassed no fewer than ten institutions; asylums for orphans, idiots, and epileptics, and retreats for the aged and for the outcast. He died in 1881, within a year of the completion of his work, closing a career hitherto unparalleled, and not since emulated by his countrymen.

A French journal thus deplores the present situation: "There is no doubt that of all abnormals the idiot is, with the cripple (*l'estropie*) and the incurable, with us the least provided for. There are in France no special schools for these unfortunates, excepting the Bicêtre and the Salpêtrière, and these receive only children from the Department of the Seine."[1]

Bourneville, Physician-in-Chief of Bicêtre, makes a similar statement in his report of 1894: "There is in a certain number of countries, especially our own, an unfortunate class of children, helpless and incapable, who receive hardly any assistance or treatment: these are idiots and degenerates."

There seems to have been no disposition to follow the leading of Seguin, whose purpose it was to form special private classes, for with the exception of L'Institut Médico-Pédagogique, at Vitry-sur-Seine, established in 1893 under Bourneville's immediate direction,

[1] *Revue Internationale de Pédagogie Comparative,* April, 1899, p. 98.

and a few schools for backward children which, however, received only boys, France at the close of the last century did not fulfil the promise of the beginning. To France, nevertheless, is due the gratitude of the world and of humanity at large; for observation and experimentation resulting in the solving of a philosophic problem; for the correct formulation of theory based upon that result; for the reduction of theory into practice so successful as to lead to its adoption by all countries; these are surely laurels upon which France can afford to rest, and, moreover, internal strife and revolution did but prove the value of a work that these misfortunes might arrest, but could not destroy.

This demonstration did not come too soon, for the silent appeal of the idiot was already creating a demand for this very supply by making pressing claims upon the energies of workers in other fields. In America, Howe, of Boston had attempted the training of idiots among the children in his asylum for the blind—attempts that were followed by encouraging results—and the Hartford Asylum for Deaf-Mutes had been forced to make a similar experiment with the idiots that drifted in with its pupils. In Germany, Saegert was having a like experience in his asylum at Berlin, and Kern, after a successful experiment with two children, was preparing to open his institution at Möckern. In England, Reed, in the pursuit of philanthropic endeavor, after a journey through Cornwall and Wales, wrote: "From what I have seen I think an asylum for needy idiots very necessary. We will first have to get information, then the practice must follow." About the same time Guggenbühl, with all his sympathies aroused in behalf of the cretins of Switzerland, was training as physician in the asylum at Hofwyl, for his life-work among them.

The year 1842 saw what might be said to be the efflorescence of this growth, for we note an almost simultaneous movement in three countries—the more singular because of the lack of intercourse or of preconcerted action—to establish permanent work on definite lines similar to those already laid down by Seguin in Paris. He himself, in this year, was to introduce his methods in the school established by Ferrus and Voisin, at the Bicêtre.

Both Saegert and Kern, finding, as had Howe, the impossibility of attempting the co-education of two classes of defectives, opened

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CASE B.

CASE C.

IDIOTS—PROFOUND APATHETIC.

private institutions for the training of idiots, and the "Abendberg," truly a beacon-light set upon a hill, became an object-lesson among the nations.

The wretched condition of the cretins in the valleys of Switzerland had been a subject of investigation from time to time, and had given rise to a voluminous literature on the subject of cretinism. Felix Plater mentions it as early as 1500; Walfgang Höfer, an Austrian, physician to the court of Vienna in 1675; and the writings of Fodéré, a Savoyard, a physician of repute in 1792, are often quoted. But these investigations were only along the lines of study and research, and evolved no plans for the amelioration of the cretin's condition; they had, however, the merit of attracting attention and forming a basis upon which others could work with this aim in view. In 1811 Napoleon I., with a view to transplanting families and thus effecting a cure and preventing increase, caused a census to be taken of cretins in Canton Wallis, Department of Simplon, which showed numbers there amounting to 3,000. This undertaking was frustrated by its very magnitude and by the unwillingness of the people to leave their homes.

Now and again we find mention of asylums. Kohl speaks of one at Sitten, in Wallis, and another at Chur, in Graubündten, and adds that an asylum for twelve cretins had existed for ages in Admont. These institutions, of course, ministered only to their bodily wants. In 1828 Guggenmoos, a teacher of Salzburg, was the first to attempt any form of mental training; he failed, as did the Pastor Haldenwang, in 1835, at Wildberg, from lack of aid and encouragement. The year 1836, however, was to usher in a promise of better things. A poor deformed cretin, murmuring his prayers before a wayside cross, gave an impulse to a life that, from that moment, became devoted to the one cause. Greatly moved at the sight, and having his attention drawn to various forms of cretinism, Guggenbühl, a young physician of Meilen, Canton Zurich, settled in Sernf, in the valley of Clienthal, Canton Glarus, for two years in order better to study the cretins' condition. Assured that much could be done for mind and body by systematized effort, he determined to found a hospital. After conferring with Fellenberg, he consented to accept from him the post of physician in the asylum of Hofwyl, near

Berne and leaving his few poor patients in Cleinthal in grief at the departure of their beloved physician, he entered with ardor upon a training that should enable him to bring relief to the many. His efforts in behalf of these afflicted ones however, provoked invidious criticism, and in a paper entitled "Christianity and Humanity in Regard to Cretinism in Switzerland" he made an appeal to the Swiss Association for the Advancement of Science. His views as there set forth won not only unqualified approval, but his plans for a hospital were emphatically indorsed in this wise: "The knowledge and zeal of Dr. Guggenbühl would, in case he were made director, undoubtedly furnish the best guarantee of success."

Just at this juncture (1842) a plantation on the Abendberg, near Interlachen, in Canton Berne, 4,000 feet above sea-level, was placed at his disposal by the Swiss forester Kasthofer, who had proved that the cultivation of plants, and hence colonization, was possible at that height. Cretinism, in rank growth in the valley below, was unknown at this elevation, where, 100 feet from the summit of the mountain, was soon erected the first hospital for its relief. The southern slope, embracing a tract of some 40 acres, was speedily dotted with cottages, the general work of the establishment being committed to the care of the Evangelical Sisters of Mercy—Diakonissen.

The methods there pursued we find were closely identical to those that experience was dictating likewise to Seguin in Paris, modified according to the especial needs of the cretin. The diet was simple, mainly vegetable—except potatoes—fruit, milk, eggs, and white bread, with very little meat.

The senses were continually called into action by means exaggerated and oft-repeated but frequently changed so as to avoid dulling by monotony.

The benefits of altitude were augmented by free life in the open air, with inducements for constant and varied exercise, to which was added the stimulus of frequent baths and of massage.

Guggenbühl, in his experiment, had not only proved that the cretin, transported at a tender age to a higher and purer atmosphere, immediately began to improve physically, but he sought also to utilize the glorious panorama of nature's wonders, there continually presented, as a means to quicken and arouse dormant faculties and

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IDIOTS — PROFOUND EXCITABLE.

to fix the wandering attention of the child. "In such a neighborhood," he tells us, "all the phenomena of nature, such as the rising and setting of the sun and moon, tempests, thunder-storms, rainbows, and the like, are seen in perfection and are found of infinite value in awakening the sleeping soul."

Accounts of the success of the Abendberg were quickly spread abroad, and scientists, philanthropists, and physicians alike made pilgrimages to the "Sacred Mount" as to a shrine, returning enthusiastic champions of the cause of the idiot, and within a decade institutions arose in America and England, and in Germany, and other countries of Europe. Urged to visit these institutions and encourage the workers, Guggenbühl went from place to place, heralded everywhere as the man who had brought the gospel of new life to the irresponsible and the incapable.

Enthusiasm reached its zenith in the middle of the century, when reverses came, the tide turned, and envy and suspicion took the place of admiration and confidence. Allegations of abuses led to vituperations and to reproaches in which the grossest exaggeration found voice, and now hostility obscured truth as completely as adulation had previously done. Finally, an investigation instituted by the British Minister at Berne resulted in Guggenbühl's impeachment and condemnation as a charlatan, and in the withdrawal, from the Abendberg, of that sympathy and support of the Swiss Association for the Advancement of Science that had contributed so largely to the successful founding of the institution. In vain did Guggenbühl publish, through the Viennese press, indignant protests against these censures; his enemies were too strong, his voice had lost its power, his institution was dissolved, and, retiring to Montreux, he died in 1863, in his forty-seventh year, broken-hearted before reaching his prime.

"Not to sit in judgment on the man," says Sengelmann, "The bow-string was strained beyond its strength. There was too much promised. To those who insisted on seeing the fulfilment of all promises it was necessary to present 'parade horses,' and this procedure could not satisfy those observers who penetrated into the character of it. The incense of adulation weakened his sober judgment. To this it must be added that during Guggenbühl's fre-

quent absences from the Abendberg, abuses crept in which he could not at once detect or correct. Later, when suspicion was once aroused, his religious tendencies, which had at first been tolerated, were made to appear as the source of these abuses, and he was unjustly stamped as a hypocrite."

In reviewing his methods, which in the main meet the demands of and are indorsed by latter-day experience, we cannot but acknowledge the deep insight gained by this man into the needs of many forms of defect, in his self-devoted study of the one; an insight not alone into details, but far-reaching in scope. That he, in a comparatively narrow sphere, should have worked out and foreshadowed the colony plan of the large institutions of to-day is as marvelous as it is admirable, and history but fulfils a tardy act of justice in placing Guggenbühl's name among those of the pioneers in a work to which he had devoted the best years of his life.

Cotemporary with Seguin and Guggenbühl, an acknowledged authority in the treatment of idiots, and, with them, influencing the times by an exposition of theory and practice on a physiologic basis, stands Saegert, Director of the Asylum for Deaf-mutes in Berlin. Being compelled often to refuse admission to children too feeble in intellect to be benefited by the methods pursued in this institution, compassion led him to inquire into the nature of their infirmity by a process of psychologic reasoning, or what we to-day would term a study of abnormal psychology. In 1843, experimentation led him as it had Seguin and Guggenbühl, into training along physiologic lines, which attempt was attended by such success as to warrant him in bringing the matter before the proper authorities. Failing to secure aid, although encouraged by the Minister of Education, he, in 1845, determined with the assistance of his wife, to venture upon a private enterprise.

This soon attracted the attention of interested visitors who came to compare his work with that of Seguin and of Guggenbühl. In his monograph, written in 1846, entitled "The Cure of Imbecility by Intellectual Means," he outlines the treatment of 20 cases carried out in his institution at Berlin. This institution was later transferred to Dr. Heyer and removed to Neustadt, Eberswalde.

Having seen the power of devotedness and determination working

through centuries toward, first the founding, and next the molding and fashioning of the work into definite form by these three men—Seguin, Guggenbühl, and Saegert,—each in his way displaying those certain elements of success, enthusiasm and singleness of purpose, the result is no longer to be wondered at, but may rather be recognized as a foreordained conclusion. Moreover, while acknowledging the remote influences of Bonnet and St. Vincent de Paul, and the fact that without Péreiere Itard had been impossible, we must admit that, without the practical working of Seguin, Guggenbühl, and Saegert, the invaluable theories of Péreiere and Itard would, for the idiot, have remained mere hypotheses.

Seguin, himself an exile, watched from afar France torn by internal dissension unable to profit by his teachings; Guggenbühl died broken-hearted after the failure of the Abendberg; Saegert, more fortunate than his compeers, lived to see their hopes and his own realized in his native land.

We will now discuss briefly the able following of such leading in different countries.

Germany, awakened at last, and responding to the call for popular education, had workers such as Kern and others already in the field, of whom Saegert was but little in advance. That the times were ripening toward the harvest is evident from the signs in various directions within a decade after the opening in Berlin, in 1845, of Saegert's "Institution for the Cure and Education of Idiots." The gathering of statistics of idiocy by the governments—notably those of Wurtemburg, Sardinia, and Saxony; encouragement and aid in founding institutions; the discussion of the subject in conferences of philanthropists, of physicians, and of clergy; individual bequests and donations—these efforts often reinforced and sustained by charitable organizations. As a practical result we find a record of the founding of no fewer than 32 training schools for idiots within a period of thirty-five years—from 1846 to 1881.

Saxony leads all the German governments in recognizing the needs of the idiot, in providing the first state institution and in making training compulsory by law. Dr. Ettmüller, in 1844, in a lecture on "The Education of Idiots," delivered at Freiburg before the Saxon Medical Association, made such an impression

that the Ministry of the Interior and of Education were won over to the cause, and ordered that a census of those likely to be benefited by training be taken by the district authorities.

The teacher Hörnig was commissioned to observe the workings of other institutions, with a view toward establishing an experimental school; this last was carried into effect by him in August, 1846, at Hubertusburg, the number of pupils being limited to 10. In November of the same year the charge was transferred to the teacher Geäsche, and under him it became, in 1852, a permanent institution for idiotic children, the number of pupils having been increased to 30—all boys. In 1857 it was opened to both sexes. The report issued upon the occasion of its twenty-fifth anniversary (1871) gives valuable information regarding the work done in shops and schoolrooms, and shows a register of 46 pupils.

Continuous growth necessitated corresponding expansion, and over-crowded conditions were relieved by the separation of sexes in two large buildings. In addition, several farms were acquired that provided occupation for many of the inmates who averaged, in 1898, about 550. More recent advices show that the work has since been diverted into asylum and hospital channels, the more intelligent being transferred by the authorities to the Alsterdorfer institution.

The first private institution, that of Kern, at Leipsic, is remarkable as having been the outgrowth of an experiment similar to that of Saegert's in Berlin. Its director, Dr. Kern, a teacher at Eisenach, had been encouraged by the success that had attended his training of some deaf-mute imbecile children, and after subsequent study and practice in the deaf-mute asylum at Leipsic he was appointed superintendent of a similar institution in his native town. Here, with the approval and encouragement of the authorities, he continued to receive idiots; soon, however, finding the two incompatible he, early in the year 1847, resigned his position to devote himself exclusively to the training of idiots in Leipsic. His institution, later removed to the neighboring town of Möckern, and numbering some 50 children at the time of his death, was continued under the supervision of his widow and his son.

Mariaberg would seem to have been especially blessed in its day

and its generation. A daughter of the Abendberg, its site the home of prayer and good deeds through many years; its first office the rescue of a good work on the eve of failure, and on that foundation so building its own superstructure that its influence was felt at home and abroad; legendary lore, religious enthusiasm, and, finally, scientific research all combine to give its history the true atmosphere of the Rhineland.

The king of Wurtemburg, returning from a visit to the Abendberg, was filled with a desire to emulate Dr. Guggenbühl in ameliorating the condition of similar unfortunates among his own subjects. His plans found an enthusiastic supporter in the able and efficient Dr. Rósch; this, too, at a propitious moment, just when the good Pastor Haldewang, who since 1835 had cared for a few cretins in his own home at Wildberg, felt constrained to relinquish his labor of love. Here was a nucleus for the new institution; there remained but to provide a home.

The convent of Mariaberg, one of the dismantled religious houses of the period, had been a votive offering, and owed its existence to an act of thanksgiving. Playing one day in the Lauchartgrund, two children of Count Hugo von Montfort disappeared. In his grief, the distressed father vowed to the Virgin that if the missing ones were returned to him, he would build a convent in her honor. A search was instituted, and, among the stacks in the barnyard, under the hay, the two children were discovered asleep. The father kept his vow, and the "Convent Berg of Our Lady" rose upon the hill.

It was in this place, consecrated by its association with the innocence of childhood, with parental love and gratitude, and with lives of unselfish devotion that the work of the good pastor was to be revivified and the hopes of the king realized. Dr. Rósch, with 13 charges, 10 of whom were from Wildberg, took possession of the building placed at his disposal, and on May 6th, 1847, the institution was formally opened with appropriate services in the chapel. Besides enjoying royal patronage—the Crown Princess Olga was its protectress—the office of general director has been filled successively by men of high professional standing, such as Helferich, Zimmer, Kraft-Rall, Rósch, Autenrieth, Griesinger, Prelate von Beck, von Schwanden, and Neudorfer.

The work, at first, aimed to be solely educational, but the necessity for a custodial department soon became apparent; this addition was finally effected, in 1860. Experience next dictated another extension, and in 1874, through the persistent efforts of Director von Schwanden, an extensive farm, of from 300 to 400 acres, was acquired, fore-shadowing the colony plan of the future. This last acquisition gave a definite aim to, as well as greater opportunities for training, and placed the institution on a substantial basis, so that to-day, with 175 inmates, it ranks among the successful institutions of Germany.

Founded in 1850, the Alsterdorfer institution manifests a continuous growth. Every addition has been made in compliance with demands made evident by experience, and at the close of a half century's existence, it presents every provision for a model charity colony. Among the buildings that go to make up this colony are:

1. The St. Nicholas Stift: a home for friendless normal children, erected in 1850.

2. The Asylum for Idiotic and Feeble-Minded Children, erected in 1863.

3. The Home for Cripples (normal children), built in 1871.

4. A School for Defectives of the wealthier class, including epileptics, erected in 1882.

5. Hospital and isolation wards, built in 1897.

The St. Nicholas Stift, somewhat similar to our societies for protection from cruelty, aims to rescue children from irresponsible parents or from vicious environment. Its founder, the good Dr. Sengelmann, within a few years resigned his pastorate to devote himself exclusively to the work, as an unsalaried director. The asylum for feeble-minded owes its origin to the need he felt, during the early days of his ministry, of providing for a homeless, idiotic child. With a register of 4 children at its beginning, it is now complete in all departments—custodial, educational, and household. Epileptics are received, 186 of them being cared for at the present time. Situated on the banks of the Aester River, near Hamburg, amid beautiful and healthful surroundings, this institution, with a staff composed of one director, two physicians, and a principal of schools, is caring for 655 unfortunates. It comprises 42 buildings, including

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a church and a school for 110 pupils divided into 8 classes. A large farm, gardens, and hothouses give healthful occupation to many, while in the various shops every trade is represented.

The enterprise has been private from its inception. It has received but one appropriation from the government, but liberal and repeated donations have made possible this extension and the acquisition of property valued at not less than half a million marks.

Langenhangen, founded in 1862; Kückenmühle, in 1863; Polsingen and Stetten, in 1866, stand foremost among the German institutions for mental defectives whose efforts have been directed toward the amelioration of epilepsy; while Bielefeld, in 1870 and Rothenburg, in 1880 are asylums established primarily for this afflicted class.

In the Kingdom of Hanover the census of 1856 showed an idiot population numbering 1,200, and that of 1860 showed some 500 under the age of fifteen. Through the agency of both press and pulpit, interest was aroused that resulted in the establishment of a fund and the appointment of a committee to consider the erection, at various points, of educational and home institutions for feeble-minded children. The sole result of this movement, however, was the founding of Langenhangen, whose growth bears evidence that it was a response to a pressing need. It opened in January, 1862, with 30 inmates. In 1868, when Dr. Kind, who had gained an experience both as a teacher and a physician under Dr. Kern, at Mockern, came to take charge, the number of inmates had increased to 170. From this time on there was a continued increase up to 300 patients, with a proportionate increase in the number of epileptics. Combining the two classes of unfortunates did not prove encouraging and experience pointed to the advisability of separation.

The report of 1902 showed, under state provision, 709 patients, of whom 151 were epileptics; and 28 buildings, in addition to two hospitals and a school of 10 classes.

In Pomerania, stirred by the home missions and the writings of Disselhof, the provincial government caused, in 1860, a census to be taken of the idiot population. This showed that of 625 idiots, 300 were reported as capable of receiving instruction, and 254 were paupers. An appeal for financial assistance through the columns

of The Messenger, brought in only a small amount, but nothing daunted, its editor, Gustave Yahn, did not cease to agitate the subject. In his own name and at his own risk he bought a property just then offered for sale, a water-mill, Kückenmühle, to be used as a home for these helpless ones. His enthusiasm overcame many obstacles; donations and grants of land followed in quick succession. A board of directors, made up of a body of energetic men, was formed, and in 1863 the cornerstone of an institution was laid that, for phenomenal and rapid growth, has surpassed all other German institutions—Bielefeld alone excepted.

In one year it showed an increase of from 4 to 33 patients, and in 1871 it numbered 100. In 1882 Tabor, a branch, was added providing for epileptics. The report of 1902 shows 920 inmates—330 being epileptic; 52 houses—23 for patients and 7 for officers; 22 farm houses; 2 hospitals; a church; a gymnasium; and a school of 8 classes. The institution continues, a private corporation under state patronage.

Neuendettelsau was founded in 1855 by Johannes C. W. Löhe, whose life repeats for Germany the story of Andrew Reed in England and John Bost in France. Two mission houses, an order of Diakonissen, and a Sister House, with schools, hospitals, and more than one idiot asylum, attest to his devoted service to the brotherhood of man.

Polsingen, an offshoot of Neuendettelsau, was founded in 1866, as a provision for the male idiots. The institution, which is strictly private, reports in 1902, 4 buildings, sheltering 120 patients—25 of whom are epileptics—and a school of 30 pupils.

Stetten owes its existence to a society of pietists of Wurtemberg, who with two children, in the spring of 1849, began work in the castle of Rieth. The rapid growth of the institution twice made removal necessary, the first to Winterbach, and again to the castle of Stetten, where, in 1866, it was further enlarged, so as to gain room for epileptics, providing asylums and physicians for specific study and research. The report of 1902 shows 442 patients, 216 of whom are epileptics, with 6 large buildings, in addition to a hospital, a gymnasium, and a school-house with eleven class-rooms. Stetten is a private institution deriving state aid.

By far the largest and most successful effort in behalf of epileptics is Bethel, near Bielefeld, Westphalia, fitly termed "A Colony of Mercy." This, like Mariaberg, had its foundation in an act of thanksgiving. The good pastor von Bodelschwingh, at the beginning of the work, seeking for some means to provide for epileptics, issued an appeal to the mothers of Germany for a thank-offering for each perfect child born to them. The pennies came showering in, and among them two from a sorrowing mother, who gave thanks for two infants gathered safely in the arms of "Him who loveth children." "A widow's offering" of 6,000 marks, brought likewise a happy suggestion that the families of all patients received, be asked to contribute a penny a day. The collection from this source amounting in one year to 38,260 marks, has become a permanent and important source of revenue as is also that collected regularly from almsboxes in public places. These, together with donations and fees from private patients, contribute largely to the maintenance of this noble and far-reaching charity.

Begun in the autumn of 1867 with 3 patients, at the close of its seventh year it reports a list of 144; having received in that time 450 patients. Adding house to house and land to land, enlarging operations as experience and necessity indicated, it stands to-day a model village which, with its outlying farm and park-lands, provides every convenience for its large population.

The original Bethel continues the home of the brighter epileptics, separated from the feeble-minded who are cared for in smaller buildings, the institutions being known collectively as the "Zion Institutions." These provide for the homeless a home, for the sick hospitals—from which also remedies are sent all over the world, benefiting it is estimated over 50,000 persons—and for the hopeless and despondent that greatest of all panaceas, work, more than 20 different trades and avocations being pursued, exclusive of those of the household; 6 pastors and 12 physicians are in charge.

In the first thirty years 5,028 persons were received and discharged, about 30 per cent. being improved. The report of 1902 shows 1,771 inmates, quartered in 45 buildings, with 60 buildings for officers and caretakers. There are churches, gymnasiums, and roof-gardens, an electric plant, an assembly hall with a seating capacity of

1,500, 4 hospitals, and 2 school-houses, in which 180 children receive instruction.

The Municipal Institution for Epileptics at Berlin provides for 1,082 epileptics. Receiving only residents of that city, it is a village in itself comprising 50 houses, including a school of 6 classes and 7 hospitals; 1 for children, 2 for men and women, 2 custodial, and 2 isolation.

Rothenburg, private, was the direct work of a benevolent society having some 350 members. It was opened for epileptics January 4, 1880, as an asylum with 5 children; the number speedily increasing to 75; the growing institution soon comprised 5 houses, a school with 20 children, and 5 hospital stations where patients receive treatment. At the present time there are 9 buildings and a school, making provision for 186 patients.

In providing for the idiot, Denmark leads the Scandinavian countries. The inception of the work is due to the energy of Dr. J. R. Hübertz, who under the patronage of the Queen Dowager, Caroline Amalie, was enabled in 1852, to visit and observe in foreign institutions. Returning from this valuable preparation, his efforts to bring before the public the pressing needs of the idiot resulted in the purchase of a farm near Copenhagen, Gamle Bakkehus, and the opening of a small private institution, in 1855, which the unremitting zeal of its superintendent, Pastor Durloo, has maintained for some forty-seven years. Increased to 4 departments—Gamle Bakkehus, Ebberödgaard, Lillemosegaard, Karens Minde—with a capacity for some 900 patients, it now receives a subvention from the Government, and, under the supervision of the Minister of Public Instruction, it provides for the eastern part of the kingdom, just as the Keller Institutions now do for the western. These latter—founded by Johan Keller in 1856, and continued by his son, Dr. Christian Keller—of which there are two, one near Copenhagen, providing for 250, the other, Brejning (Jylland), with a capacity, now nearly reached, for 700 children, include asylums, day-schools for backward children, a farm colony, and work-shops for training in the various handicrafts.

The first idiot asylum in Sweden was organized by the army chaplain Glasell, in 1863. Miss Emanuella Carlbeck, who took charge

of it in 1866, later became the founder of the institution at Skófde, toward which the government contributed 5,920 kroners annually. Success here led to the founding, in 1870, in Stockholm, of a society for the education of feeble-minded children, Professor Kjellberg, Dr. O. von Feilitzen, and Dr. Theol F. Grofstrom being leaders in this movement.

An appeal from this society enlisted the sympathy of all sections of the country, and funds were gathered sufficient to aid in the enlargement of the institution at Skófde and also to found one at the capital. Conferences of teachers for defectives—blind, deaf, and idiotic children—were inaugurated, and for the purpose of assisting in the work of the training-schools there was established, in Stockholm, in 1878, a school for backward children and a class providing for the training of eight teachers, the course in theory and practice covering a period of two years. This received an annual subvention of 9,500 kroners from the government.

At present there are 33 institutions in Sweden, including schools for the trainable, workshops for those completing a course in the schools, and asylums for the unimprovable. These are supported by societies, by city councils, and by private donations. The government also adds an appropriation of 250 kroners for each child in the school and 100 for each pupil in the shops. The number provided for in these institutions amounted, in 1902, to 881.

Small establishments are considered preferable to large ones, and no one of these numbers over 82 pupils. A large proportion are directed by women, of whom also the teaching force is largely comprised. The schools are divided into three classes of one year each, with a preliminary course of two years, during which time the child is carefully studied in order to judge of his ability to receive training.

The program is that of the primary schools; language lessons, catechism, the history and geography of Sweden, natural science, writing, arithmetic, drawing, singing, physical training, and most schools add a training in household employment, manual training in wood, basket-making, brush-making, shoemaking, and gardening. As Sweden was the first country to employ manual work with a pedagogic aim, this system has been found especially adapted to the education of mental defectives, where practical teaching finds favor-

able soil and proves an excellent means of developing intelligence. Workshops have been established especially for those going out from the schools, as it has been proved that this class, however skilled, can never compete successfully with normal labor. The shops for men are usually located in the country, where the inmates can be employed successfully in farming, gardening, and the care of stock; under direction they show good capacity for these occupations. The shops for women are located chiefly in the towns, and the expenses are practically defrayed by the sale of the work, which consists of tapestry and carpet-weaving, sewing, quilting, and lace-making. There is an asylum in almost every school, although it must be said that Sweden displays but little interest in this branch of the work, preferring to admit to its institutions only those who are trainable. The total number of mental defectives in Sweden, according to the last census of 1890, was 7,619, being about 159 to every 100,000.

In Norway attention was first attracted to the needs of the idiot by Dr. Ludvig Dahl. Experiments were begun in 1871 by Mr. Hanson and Mr. Lippestad, both having had previous experience with deaf-mutes. After the number of their pupils had increased to 40, a separation of the sexes being found desirable, Mr. Lippestad purchased a farm and opened at Christiania, with 17 girls, the institution of Thorshaug, which, numbering now some 200, still continues under his direction. Sent by his government to visit the institutions of Germany, he added, after his observations there, a department for epileptics.

The institution for boys, having capacity for 100, was continued by Mr. Hanson at Ullersvedsvien, and a third institution was opened near Bergen, of which J. Salthre is superintendent, it having, according to latest advices, 40 inmates.

The Compulsory School Act of Norway includes imbeciles, and since 1892 all institutions, as also the classes for backward children, are under state control. Norway and Saxony are the only countries in Europe where education is compulsory alike for normal and abnormal children. Although few in number, the Norwegian institutions are considered models as regards buildings, management, and

methods, the chief characteristics being complete separation of the sexes, and small classes, thus giving opportunity for individual attention, and training for some special life occupation; for the girls, chiefly dairy and household work and country pursuits; for the boys, trades in the towns, where they are placed in situations and kept under observation. Untrainables are rejected, the government making no special provision for idiots.

In Russia the institution at Riga, founded in 1854 by Friedrich Platz (a former teacher of deaf-mutes), passed at his death, in 1864, into the hands of his widow, who attempted, with some success, to carry out Georgens' and Froebel's ideas.

In Finland a census, not altogether reliable, shows the number of idiot children between the ages of seven and twenty years to be not less than 2,500. In 1876 a small school of 9 pupils was opened in Jakobsstad, Finland, by Mr. M. K. Lundberg, under a council of pedagogues, to the support of which the government contributed. This led, in 1883, to the establishment of special schools. A private school established by Edwin Hedman in Helsingfors in 1890 under state patronage cares for 60 pupils, receiving children from both Finland and Russia; it has also an asylum department for untrainables.

All institutions for defectives are now under the direction of the Superintendent of Public Instruction, with a special inspector.

In Turkey and Armenia, as also in Greece, there is no provision for mental defectives other than in hospitals for the insane.

In Holland a spirit of emulation was early awakened by a visit of the Queen of the Netherlands to the Abendberg, and a movement toward practical work, proposed and advocated by the Court Preacher Van Koetsvelt, in an able work on idiocy and its cause, led to the establishment of a day-school for trainable imbeciles, which opened at the Hague in 1855 with 31 pupils. Obstacles, financial and legal, combined to prevent work on a more extended scale. These, overcome within two years, and a suitable building purchased, the school found its permanent home in an institution that, in 1902, reported 78 pupils provided for.

The official visit of Count Bombeller, the Austrian Ambassador, to Switzerland, and to the Abendberg, directed the attention of his countrymen to the necessity of taking a census and making some provision for idiots. This was further emphasized in 1857 by an appeal from Guggenbühl himself to the Vienna Academy of Sciences, and a school for idiots was opened in the blind asylum at Ybbs, in 1864, which numbered some 40 pupils.

State pupils were also received by Georgens in the Levana, at Liesing near Vienna, but religious differences tended to defeat the benevolent purposes alike of himself and of the government.

In Prague, in 1870, an asylum having a capacity of 300 was founded by a charitable society. The Stephanie Asylum, under the patronage of the Crown Princess, was opened in 1883, at Biedermansdorf near Vienna, receiving 27 pupils.

A hospital for the relief of mental defectives was erected at Gratz, planned by P. Schmidt, Prior of the Order of Charity who, unfortunately, died in 1882 before seeing the realization of his hopes, and the institution opened later, appears to be mainly custodial.

The reports from Hungary recall the conditions that appealed so forcibly to Guggenbühl, "wretches tramping in rags and filth, covered with vermin, objects of scorn and aversion, soliciting alms with grotesque gestures."

Switzerland, like France, after giving an impulse to other countries, remained herself with pulses but little quickened, until in 1883, Regensberg, Canton Zurich, emulating the German institutions, made a fresh pathway back to the teachings of her Abendberg. Previous to this, the work in the various cantons consisted chiefly of erecting asylum or hospital stations; 4 small private asylums and 1 large establishment, under the patronage of the Public Utility Society, are mentioned. These, however, proved wholly inadequate, as the statistics of 1897 show mental defectives numbering 7,667; of these, 6,215 are of pronounced intellectual inferiority, the remainder being idiots. In 1899 M. Schenker, of d'Aaran, in a paper on the "Etiology and Therapeutics of Idiocy," pleaded the necessity for legislation to combat the increase of imbecility. In this paper he pointed out the necessity of: "Laws interdicting marriage between the weak-minded, epileptics, and idiots, those affected by

Case D.

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IDIOTS—SUPERFICIAL APATHETIC.

PLATE VII.

chronic alcoholism and tuberculosis; rational education and healthful alimentation for our youth; the diffusion of information, both by speeches and through the press, as to the causes of idiocy and the means of combating it; special classes and asylums for incurable idiots."

In 1902 Switzerland stands possessed of 18 asylums, all private, some few of which receive state appropriations, and 41 auxiliary classes in the various towns. Of these Zurich counts the greatest number, 9; Bâle, 8; Berne, 4; Berthonel, 2; Appenzell, 4; St. Gall, 3; Geneva, 5; Wintherthom, 2. The special classes have an attendance of 567 children; 411 are in asylums, and 114 are in orphan asylums. There remain 5,485 mental defectives for whom nothing is being done.

Belgium seems to have taken no part in the movement so general in the middle of the nineteenth century to succor the feeble-minded, the law leaving entirely to charity the care of these unfortunates who were often as utterly neglected as had been the mutes and the blind of the preceding century. Judging from the number of imbecile and idiot paupers thronging the streets soliciting alms, there must have been many thousands of such children receiving no manner of education or training. They were crowded into almshouses, houses of refuge, asylums or in hospitals for the insane. Statistics prove that of those applying for admission to institutions for deaf-mutes, at least 10 per cent. were mentally defective.

At Manage in Hainault there was opened by some Brothers of Charity in 1892, an asylum for idiots and epileptics, which reports in 1900 a register of 270 children, 60 of whom are epileptic. These, divided into three classes, improvables, non-improvables, and cripples, receive little more than asylum care. There is a school in which 50 children of various grades of imbecility are all under one teacher. There is neither manual, musical, nor physical training, nor any attempt at education of the senses, and while some few of the brighter children work in the shoe and tailor shops, none of them are employed on the farm.

In the asylum of Tessenderloo, Limbourg, with a capacity of 200, opened under similar management in the autumn of 1895, much

the same conditions exist as to schools and lack of facilities for training on scientific lines, but there is some industrial and manual training, a number of the children being employed on the farm, in the laundry, and in tailoring, shoe-making and brush-making.

Reves, Hainault, a private institution for imbecile and backward children established also in 1895, and conducted by some Sisters of Charity, is in closer accord with modern ideas. Epileptics are not received. The children are divided into five grades according to intelligence and capacity, an average of eight pupils to one teacher giving opportunity for individual attention, special cases being often assigned singly to one instructor. The education of the senses, and physical, musical and manual training make up the daily program.

At Saint Ferdinand, an institution directed by a brotherhood for the benefit of children who have remained a term in a reform school, the medico-pedagogic methods must be absolutely unknown, for the director reports: "Among these children coming to us are many who are backward, imbecile, and epileptic; these naturally are not able to profit by the instruction given in the classes nor will they ever be able to learn a trade."

La Maison St. Benoit, Lokeren, an asylum for young girls, idiot or insane, under the direction of Sisters of Charity, numbers 365 pupils. These are divided into three groups: first the idiots and imbeciles classed in three grades according to nervous condition; second, epileptics entirely separated from other children; third, cripples. Although the teaching force is insufficient this is in a measure supplied by many excellent devices in methods. There is some training in household occupations and in sewing, but there is no regular methodical correction of speech defect nor indeed of any special physical weakness, further than a class in gymnastics.

In the large hospital for the insane, Guislain, Ghent, conducted by Brothers of Charity, there is a department for mental defectives divided into two sections. The first accommodates some 25 cripples; in the other some 50 imbeciles of all grades are crowded into a school with one teacher where tuition in the three "R's" only is attempted. The education of the senses is totally neglected. The brighter children have instruction in music, and are also employed about the farm and in the various shops. As there is but one physician in all this

large establishment it goes without saying, that it is impossible to give to the individual that psycho-physiologic treatment so necessary.

Doctors Ingels, Morel, and Demoor, have in successive years vainly attempted to modify the system and to introduce reforms, but the administration evidently considers the department for idiots of very minor importance. At Royghen, Ghent, seven or eight imbecile children of the wealthy class, receive asylum care in an institution for deaf-mutes.

In the two colonies for the insane, Gheel and Lierneux, there are large numbers of mental defectives. These receive no special training and but few are employed in the work of the colonies, so that it is quite remarkable how many do attain to a certain degree of usefulness. Brussels and Antwerp have each a school for backward children established respectively in 1897 and 1899, under the direction of the Commissioners of Public Instruction on medico-pedagogic lines, each having its examining physician and provision for physical and mental training.

The children coming into these schools are divided into two classes, the merely backward and the incorrigible; the one requiring a mild and the other a severe discipline.

Besides the service rendered to the cause of the mental defective and to general education, these schools promise an important field for the study of abnormality and pedology. An interest is also awakened in the mind of the general public favorable to the views recently formulated by the society for the treatment of mental disease: viz., that colonies be provided with asylum schools; that these schools have classes according to degrees of intelligence; that the half-day system be applied—the children working largely in the open fields; that children be received at a very early age as soon as a diagnosis is possible; and that provision for epileptics be entirely separate from others.

It is almost impossible, even with the official and non-official statistics at hand, to reach with any precision a correct total of the mentally defective population of Italy. The approximate number of 24,000 includes not only idiots, imbeciles, and neurasthenics, but all forms and every degree of degeneration, intellectual and moral. Of these, about 1,000 only are cared for in asylums and special classes.

Following the example of Guggenbühl's school in Switzerland, an attempt was made in 1848 to found an institution at Aosta, but this unfortunately was early transformed into an ordinary hospital.

To Professor Antonio Gonnelli-Cioni is due the honor of having founded the first school for mental defectives in Italy. This he did in the face of many difficulties and with small means.

This school was established at Chiavari in 1889, and was later transferred to Vercurago, Province of Bergamo, where, on the banks of Lake Lecco, it possesses an environment that is at once picturesque and healthful. Here in six years its numbers increased from 14 to 40, including children of the wealthier classes and others supported by municipal and charitable associations; epileptics are also received. The methods are on medico-pedagogic lines; special attention is given to the securing of a good physique by means of baths and gymnastic exercises. In addition to primary studies, there are classes in drawing and designing, in music and in manual training. It lacks only work-shops for the arts and trades and facilities for training in practical agriculture.

At Milan an effort was made to form classes for mental defectives in the asylum for deaf-mutes opened 1889, and in Alexandria a similar experiment was inaugurated the same year. In 1891, a school for nervous children of the wealthier class was opened at Nervi by Morselli; this is now closed. In the same year efforts were made for the training of imbeciles in one of the largest asylums for the insane and in the schools of Rome, Sienna, and Reggio-Emilia.

A private school for backward children was opened in Milan in 1894 by Signora Segatelli.

In January, 1898, Dr. De Sanctis, aided by some charitable women, opened an asylum for backward children in Rome. In the same year the director of the Insane Asylum, M. Bonfigli, lectured in favor of education for mental defectives, and for backward children in particular. This was the initiative of a movement which soon extended through all Italy. Bonfigli was successful in promoting a provisory committee that was soon resolved into a national league for the protection of backward children, occupying itself with the moral and intellectual education of mental defectives adjudged incurable, and also in instituting special classes in the public schools for

the instruction of backward children incapable of receiving benefit from ordinary methods. It further advocated the founding in Rome of a national school for mental defectives and converting some of the primary schools into boarding schools for backward children. The views of Professor Bonfigli won the favorable consideration of the Minister of Education, Signor Baccelli, who, in his report of 1899, gives the following endorsement: "The aim of the league is in the highest degree worthy of a civilized country, since in seeking to bridge a hiatus in pedagogic methods, and to complete our series of educational institutions, it proposes to extend the benefits of education to feeble-minded children and thus to protect society from the menace which the presence of so large a number of irresponsibles forming an element at once burdensome and dangerous cannot fail to present."

The work of the national league, enjoying the patronage of the Minister of Education, has been aided by a course of special lectures given by Signorina Montessori in the principal Italian towns, which have aroused the liveliest interest in these unfortunates. At the same time, in different parts of the kingdom, committees have been organized, notably the Emilien and the Tuscan, as well as those of Milan and Genoa. This last has recently opened a special school for backward children as an annex to the school for cripples.

The Emilien Committee owes its existence largely to the efforts of Professor Tamburini, of the University of Bologna and Director of the Asylum for the Insane in Reggio-Emilia, whose pen has influenced in no slight degree the movement in Italy. This Committee founded, July, 1899, the institution of Saint-John-Persiceto, a medico-pedagogic school, the most complete in all Italy. There are class-rooms for special grades, work-shops for the arts and trades, a farm for training in agriculture, a theatre, music and drill-halls, a gymnasium, and a section of hydro-therapeutics. There are also separate sections for boys and for girls, for the rich and for the poor. Backward children are received between the ages of 5 and 15, and imbeciles if improvable, older. They send to this school trainable imbeciles from the houses of refuge in the various provinces, the expenses being defrayed by the province from which they come.

The Tuscan School, inaugurated by the Tuscan Committee at

Settignano, near Florence, receives as boarders boys only, from 4 to 12 years, but day pupils of both sexes from 6 to 16 years. Only trainable children are admitted, those capable of following the elementary classes in the school and of being prepared, through the medium of handicrafts, to contribute something to community or to family life.

In this brief review we may note that although Italy's awakening to the claims of her defective children has been tardy in comparison with other countries, yet much has been accomplished in a single decade. A good foundation seems to have been laid in many directions and on scientific lines, under competent and enthusiastic leaders, the men interested being of that position, knowledge and experience calculated to insure success.

In England, in 1843, the articles of Dr. William Twining called the attention of his countrymen to the work being accomplished at the Abendberg, and the writings of Mr. Gaskell and Dr. Conolly aroused an equal interest in that of the Bicêtre. As the times thus ripened laborers were found ready for the field. The Misses White, in 1846, opened their private school at Bath, and the Rev. Andrew Reed, who in the midst of his work for orphans had found time to study also the needs of defectives, journeyed to Paris, Berlin, and to the Abendberg in 1847, for observation and conference. On his return, at a meeting, on October 7, at which the Lord Mayor of London presided, he was so successful in enlisting the sympathies of many that a committee was appointed to consider ways and means for practical work. The following April, 1848, Park House, Highgate, was opened as a temporary home with 27 children. This family rapidly increased to 50 when having outgrown its limits, in 1850, the generous offer of Essex Hall, near Colchester, made by Sir Samuel Morton Peto, was accepted, and the building renovated, was occupied pending arrangements for securing a permanent location which would admit of yet more extended operations. In 1853 the corner-stone of the present institution of Earlswood was laid by the Prince Consort, who two years later presided at its formal opening. This, with a capacity for 500 inmates, not only more than fulfilled the hopes of the asso-

ciation, but immediately upon removal, Essex Hall became the Asylum for the Eastern Counties. To Dr. Andrew Reed and to Dr. John Conolly, Superintendent of Hanwell Insane Asylum, both promoters and acting secretaries of the enterprise in its incipiency, is therefore due in large measure the success of a movement that resulted in the establishment of two large institutions with a growing population, numbering, within fifty years, some 850 mental defectives.

Dr. Reed closed, at the age of seventy-four, a life rich in good works. Three orphan asylums, a retreat for incurables, and two institutions for the feeble-minded are the results, direct or indirect, of his untiring labors, while the fruits of his noble example are to be seen in the establishment of Starcross, Exeter, Devon, 1864; the Asylum for the Western Counties, the Royal Albert Asylum opened at Lancaster in 1864; and Knowle, opened at Birmingham in 1866, for the Northern and Midland Counties. These show, at the end of the nineteenth century, an aggregate population of 1,000 defectives.

Since 1875 the Metropolitan Schools of Darenth, Dartford, Kent, with a capacity for 1,000, have provided for successive numbers of the pauper class, whereas private schools, notably those of Ancaster House, Richmond Hill (Dr. G. E. Shuttleworth), Winchester House, Kingston Hill (Dr. Fletcher Beach), and Normansfield (Dr. Langdon Down), respond to the imperative demands of the wealthier classes.

In Scotland, as early as 1819, the importance of medical care and educational training for imbecile children was advocated by Dr. Richard Poole, of Edinburgh, in an article on "Education" in the *Encyclopedia Edinensis,* reprinted in pamphlet form in 1825. "There is reason," he urges, "for imagining that *the principle of substitution,* by which one faculty or sense is made to answer, in some degree, for another, might serve as the basis of successful education; and that it is possible that the worst cases ever met with would so far yield to science and industry as to vindicate and reward the patience and ingenuity bestowed on them. . . . The philosopher who should undertake to investigate the whole subject and to suggest

a suitable plan for remedy or alleviation, would perform an acceptable service to science, and merit the gratitude of mankind."

Sir John and Lady Jane Ogilvy, in grateful acknowledgment of all that the Abendberg had accomplished for their defective child, established in 1852, on their estate at Baldovan, near Dundee, an institution with accommodations for 30 children. This was supported by contributions and by fees obtained from children of the wealthier classes.

A similar institution opened in Edinburgh in 1855, under the direction of Dr. David Brodie, was maintained for some years, until later he was called to take charge of the Scottish National Institution for the Education of Imbecile Children, designed to accommodate 200 children. This latter institution, founded in 1861 at Larbert, Stirlingshire, will always be associated with the name of another of its superintendents, Dr. William W. Ireland, who, after an exhaustive study of imbecility, made a large and valuable contribution to its bibliography, and now directs a private school for imbeciles at Mavisbush House, Polton, Midlothian.

The Census Commissioners of Ireland in 1861 reported 7,033 defectives, and suggested " the propriety of taking some steps toward the education and moral improvement of idiots and imbeciles, a subject which at present engages the attention of the philanthropic, both in England and on the Continent, where several establishments for the purpose have been erected and are supported by the State; and in which the susceptibility of this class to a certain amount of education has been demonstrated." No movement followed this suggestion until 1869, when the Stewart Institution at Palmerston, Dublin, was opened with 43 pupils.

The British Colonial institutions are as follows:

Canada maintains one public institution at Orillia, Province of Ontario, providing for 450 children.

In South Africa, Cape Colony, there is a department for idiot children in the Grahamstown (Government) Asylum.

In Australia, provision is made for the training of 200 defectives in the Kew Asylum for the Insane, Melbourne. There are also private schools at Moonee Ponds, Melbourne, and Adelaide. Special classes

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IDIOTS — SUPERFICIAL EXCITABLE.

for backward children have also been opened in connection with the national schools.

Japan has not been slow to receive her impulse from America. Among the many subjects that her students have of late years interestedly studied, the training of mental defectives has been included, the various institutions of the United States receiving from time to time, observers eager to investigate methods; notably, Mr. Konishi, Director of the Government School for the Blind and Deaf-mutes at Tokyo, and Mr. R. Ishii (Osuga), Director of an orphanage having a department for the feeble-minded. In a letter but recently received, Mr. Ishii thus recounts the steps in a movement which will doubtless lead all Japan:

"In 1890 there took place at Nagoya, about two hundred miles south of Tokyo, a great earthquake which destroyed about ten thousand lives. Naturally, there were left a number of helpless orphans. So I gathered some of those poor little ones and opened my orphanage. Among them there was an imbecile child and this has caused me to open the department for the feeble-minded children. Some more of the latter were added soon after, and there live with me six of them now. A new building is just going to be finished, and twenty more of the feeble-minded are expected next month. There are nearly two hundred applicants, but I have no room for any addition of inmates. My institution is a private one. My intention is to make an orphanage department—that is to say, the normal minded —as much self-supporting as possible, and to devote the larger portion of the contributions which come to us to the education of the feeble-minded, who, in nature of the case, must remain dependent on the helping hand of their more fortunate fellow-men."

While Kern was taking the initiatory steps in Germany, a similar experiment toward broader conclusions was being made in the United States by Dr. Samuel G. Howe, of Boston, Director of the Perkins Institution for the Blind.

As early as the year 1839, he tells us, a child was received at his institution not only blind, but unsound in mind, and paralyzed. Under a course of treatment, persisted in according to physiologic

and hygienic laws, its condition was so far ameliorated as to encourage him in taking two similar cases.

Favorable results led Howe to infer that, "If so much could be done for idiots who were blind, still more could be accomplished for those who had sight." Many prominent men became interested in the work, and in the winter of 1846, Judge Byington, a member of the House of Delegates, secured the appointment of a committee to inquire into the condition of idiots in the Commonwealth of Massachusetts. The report of a Commission, of which Dr. Howe was Chairman, showed a thorough investigation into the nature, causes, and various forms of idiocy, and gave a full statement of conditions and treatment of 514 idiots in various almshouses and private families in Massachusetts; contrasted with what was being done for mental defectives in the training-schools of Switzerland, Germany, and France, together with a letter from Mr. George Summer, then resident in Paris, giving a full and detailed account of the work at the Bicêtre.

The immediate result was an appropriation by the state of $2,500 annually, for a term of three years, for the establishment of an experimental school; and to this end arrangements were made by the Governor with the trustees of the Perkins Institution for the Blind, in order that the experiment might be conducted by Dr. Howe who had so ably demonstrated its possibilities.

A competent teacher, Mr. James B. Richards, was engaged and sent to learn, by personal observation, the methods of instruction pursued in Paris. The school was opened in October, 1848, with 10 state beneficiaries and 3 private pupils. At the expiration of the second year, the success of the experiment having been proved, an act of assembly incorporated the Massachusetts School for Idiotic and Feeble-minded Children, and arrangements were set on foot for converting the experimental school into a separate and permanent establishment in South Boston.

Necessity demanded that the school be separated from the institution for the blind. An equally urgent necessity called for a person to take charge, one who, as physician, psychologist, and teacher in one, could alone help to meet the varied requirements of the new establishment and get it into working order. Just at the time Dr.

Howe was seeking for such a person to aid him in the difficult task of directing two institutions, a fortunate combination of circumstances brought about a correspondence with Dr. Seguin who, interrupted in his educational and literary work in Paris, consented to come to him for a brief period. Thus it happened that the first effort to introduce foreign methods of training mental defectives into America should be organized and implanted by one himself largely the author of these methods. This may, therefore, be reckoned not the least important of the successive steps taken by Dr. Howe as pioneer in a work that crowns a life devoted to the service of the helpless.

To his experiments, his indomitable will, and his unflagging energy is due the rescue to-day, of the imbecile in America. His last report, closing a record of thirty years, shows that, after bringing into existence the school in South Boston, he had been in daily attendance there, giving his personal supervision to every detail of the establishment; this in addition to printed and personal appeals influencing the legislatures of his own and of sister states, and all without salary or emolument. The school remains his most enduring monument. Removed to its present site, Waverly, near Boston, where it shelters 800 children, it most fittingly celebrated its fiftieth anniversary, the close of the century, and the beginning of a new era by the purchase of 1,660 acres of land and the establishment of a colony providing permanent homes for those who have completed their training.

Not alone in public, but in private work, is Massachusetts the pioneer of this cause in America. It was at Barre, in July, 1848, that Dr. Hervey B. Wilbur, inspired by what he had heard of the Bicêtre and the *Hospice des Incurables,* made his small beginning and won that practical experience that later, in close and personal intercourse with Seguin, was to bear such splendid fruit at Syracuse.

Under the fostering care of the Browns, his immediate successors, Barre has grown into a village of cottages for incapables of the wealthier class, the oldest and the largest private institution in America, with accommodations for some 100 pupils.

New York, simultaneously with Massachusetts, in 1846, appointed a commission on idiocy; less fortunate than the latter, however, the

plan, upon the retirement of its champion, Dr. Backus, from the senate, failed to fructify. Later a correspondence with Governor Hunt led to an exhibition, in the capitol at Albany, before the state authorities and many members of the legislature, of some of the pupils of the Massachusetts school.

The interest thus aroused, together with the impression made by the earnest appeal of Dr. Howe, caused a renewal of the long-abandoned attempt to establish in New York an experimental school, which was opened in Albany, October, 1851, Dr. Hervey B. Wilbur being called from the successful founding of the Barre Institution to take charge. Under his wise direction such possibilities were demonstrated that it was deemed expedient to remove the school to permanent quarters at Syracuse, where was erected the first building in America for the specific purpose of caring for the feeble-minded.

"Dr. Seguin coming to me," says Dr. Wilbur, "rendering invaluable service by his council, inspired my assistants with his enthusiasm." With two such leaders success was assured, and the institution more than fulfils its early promise. At the present time it has some 600 pupils; it receives no untrainables and no epileptics.

New York has made further provision for mental defectives in its various branches of public charities, notably one of the Randall's Island Asylum group, organized in 1849, and harboring now 475 children. Under the efficient management of Mrs. M. C. Dunphey, trained for the work by Dr. Wilbur, this school is an object-lesson in the perfection of that manual work best adapted to the needs of the feeble-minded.

The New York State Custodial Asylum at Newark, founded September 3, 1878, gives protection and training to 459 of the brighter class of feeble-minded women.

The Rome State Custodial Asylum, opened May 1, 1894, the first in America for helpless and unimprovable only, responded to the immediate and pressing claims of adult cases, and now provides for 410 men and 129 women. Situated at the entrance of the Mohawk Valley, with ample space for the contemplated improvements, the capacity of the institution will eventually be increased to 1,500.

The Craig Colony for Epileptics at Sonyea, rapidly emulating the example of Bielefeld, has an element of stability in that it, like many

of the institutions that we have mentioned, is a superstructure built upon a foundation laid by others.

Situated in the beautiful Genesee Valley, about 40 miles from Rochester, this tract of 1,900 acres, with some 30 substantial buildings, was originally the home of a busy, thrifty sect of Shakers. These being celibates, the colony receiving but few accessions gradually diminished in numbers, until in 1892, the few aged members remaining, sold their interest to the state for the small sum of $115,000, this being but little more than the value of the buildings.

The present colony opened on January 20, 1896, under state patronage, and received within nine months, 145 patients. As experiments aiming at cure are being conducted, only the most favorable cases are accepted, although there is hope that in the near future the institution may be opened to all classes of epileptics.

Its growth in the six years of its existence is phenomenal; seven resident medical officers are in attendance; there is a ratio of one nurse to every twelve patients; schools, farms, and shops representing all the various industries provide occupation for 700 patients; the colony is, in fact, an industrial village. The title it bears was suggested by the Governor of the State as a tribute to Oscar Craig, former President of the State Board of Charities, who, together with Wm. P. Letchworth, of the same association, and Dr. Frederick Peterson, were commissioners engaged in the selection of a location and are warm promoters of the scheme.

Pennsylvania, like New York, received its impetus from Massachusetts. In 1852 James B. Richards, who came direct from his work in Boston, opened a private school in Germantown. Here he was successful in enlisting the sympathies of Bishop Alonzo Potter, Franklin Taylor, and other prominent citizens of Philadelphia, including Dr. Alfred Elwyn who, during a visit to Boston in 1849, had been an interested observer of the work done there by Dr. Howe and Mr. Richards. On February 10, 1853, a meeting was called for discussion, and a corporation then and there formed, that with a Board of Directors undertook the responsibility of the work, retaining Mr. Richards as teacher in charge. An exhibit made by him of the children and their work before the legislature at Harris-

burg, in the winter of 1854, resulted in an appropriation from the state of $10,000 and provision for 10 beneficiaries.

In 1855 property was purchased on Woodbine Avenue, to which the school of 17 children was removed. In the following year (1856), Dr. Seguin became associated in its direction, and the enterprise seemed fairly and successfully launched; but dissensions coupled with financial embarrassment soon arose and, with the retirement of both Seguin and Richards disaster threatened; this, however, was fortunately averted by the appointemnt of Dr. Joseph Parrish, under whose wise management difficulties were tided over, differences adjusted, and embarrassments relieved. Recognition, public and private, in the form of appropriations, donations, and legacies, soon gave such guarantee of stability as to warrant a removal of the school to its present site at Elwyn, within fifteen miles of Philadelphia. This location was selected by Miss Dorothea L. Dix and Mr. H. Jones Brooke as affording greater opportunity for expansion and for the founding of a permanent institution; and in December, 1857, the corner-stone of the main building "dedicated forever to the shelter, instruction, and improvement of God's most afflicted children" was laid by Bishop Potter, the President of the Board.

On September 1, 1859, the school of 25 children, with goods and chattels, teachers and attendants came to take possession, and to establish among the many discomforts incident to the situation the present asylum village of Elwyn.

Of Dr. Parrish it has been truly said: "Never was a man better adapted to leading and vitalizing a forlorn hope." Through all the difficulties and discomforts consequent upon the selection of a new location, of building, of removal, of wintering in quarters still uncompleted, and, therefore, lacking much-needed appliances, his office was truly to warn, to comfort, and to command, and while outlining and shaping future possibilities, to give generous sympathy and to make provision for present needs. All this he accomplished under financial straits that the shadow of approaching civil strife but intensified. Well might he feel an honest pride, when, on retiring from the work in 1864, after eight years' service, he left it "complete in its organization, with a name and prestige all that might be desired as

an earnest of permanent success." As his biographer so aptly puts it: "The keynote of his life was a sympathy that uplifts without pauperizing its object, the moving principle common sense in an uncommon degree, the two combined giving a fair working definition of genius."

Truly to this man the Pennsylvania Training School owes a double debt: not only was it his to rescue and "strengthen such things as remain," but in the careful training of "a son in the profession" to build up within the structure itself that which was to prove its very tower of strength. It was, therefore, simply an act of approval of this his crowning work, when the Board nominated his assistant, Dr. Isaac N. Kerlin, as the only man fitted to succeed him, recognizing in him ability and capacity for extending and elaborating, as growth should indicate, plans into which he had grown and of which he had actually become a part.

The first in America to receive in this specialty a training so comprehensive and so continuous, all his splendid powers heightened and vivified by an intense enthusiasm for the cause that appealed to the depths of a nature tender and sympathetic as a woman's; Dr. Kerlin brought to the work to which he was to consecrate the best years of his life a power that was almost mesmeric, and that controlled absolutely all who came within its influence. Children, attendants, officers, friends, visitors, the most careless, the most indifferent, testified to this undefined "something" to which all yielded and that made itself felt equally within institution walls as in legislative halls. With infinite faith in the cause itself and in himself as its champion, his persistence in the prosecution of an enterprise once entered upon defied defeat. In periods of patient waiting he was, nevertheless, equally strong, secure in the belief of that which was sure to come. So we find him in the first few years of his superintendency, in that most trying period at the close of the Civil War, bending his energies to domestic economies and the perfecting of the internal arrangements of the household; each department receiving his careful and personal attention, as he gradually enlarged its sphere and scope until the inner needs actually conditioned the outer extension. Thus the improvements long predetermined by his predecessor were outlined and detailed under his prescient eye as the result of practical

experience and natural growth. When the times were ripe, the case was presented in a manner so convincing that neither legislators nor private patrons could withstand his appeal; the legislature, by repeated appropriations, aided in the erection of new buildings, and bequests and donations from time to time testified to the growing interest of an appreciative public.

The recognition of the moral imbecile, and the absolute necessity of a life-long guardianship, protection against temptation, and all the horrors of criminal procedure of which he must be but the innocent victim, were long and strenuously insisted upon by Dr. Kerlin in the name of science, of sociology, as a matter of political economy, of the protection of homes, and all that man holds dear. Through the press, on the platform, in his official reports as in private conversations, he did not cease to press home this truth, that a truly healthful status of the nation depends upon eliminating from its arteries this most pernicious element and to point out this the only feasible plan; the gathering of these unfortunates into homes under the care of specialists, where trained to habits of self-support, protected from the world and the world from them, they might live out their brief day, unharmed by ignominy and the thousand ills the world would bring.

More fortunate than many promoters of a cause, he lived to see his views entertained and acted upon by many. Both judges and prosecuting attorneys soon began to recognize a certain irresponsibility and natural predisposition to crime. Thus, he claims that applications for admission of defectives of this character increased so rapidly from 1884 to 1889 as to threaten embarrassment to the work of training, and in 1892 he calls attention to the difference, distinctly observable, between our own and foreign institutions, that is brought about by the absence, in the latter, of this disturbing element.

An exhaustive report of a tour of investigation, made to the National Association, forms the last of his many valuable contributions to the literature of the work. The closing year of his life was marked by active measures in behalf of the Western Pennsylvania Institution, and the perfection of an exhibit for the World's Fair at Chicago. His last report sounds a clear note of warning against the excessive growth of the asylum department, which "unless vigi-

lance and interest in the training department be maintained, will eventually greatly weaken its influence and usefulness." He also urges separate provision for children of the wealthier classes, and a further extension in the erection of small cottages for isolation and classification; "under which growth and development," he says, "Elwyn will soon become a perfect organization for the many forms and protean demands of a thousand feeble-minded folk."

With this word of prophecy he rests from his labors, dying October 25, 1893. His tomb marks one of the most beautiful sites in the park, so that even in death he is in the midst of the life of childhood of which, for thirty years, he had been the watchful guardian.

It is interesting to note how Elwyn has fulfilled his hopes and aims. Farm and park lands now embrace 337 acres. Its buildings increasing from year to year to the number of 27, have all modern appliances and the necessary fittings of some 20 schools and trade-shops, a theatre and music rooms, a gymnasium and drill-hall, well equipped laboratories—anthropometric and bacteriologic—and two hospitals. Its trainable children gradually but steadily outnumbering its untrainable, include those of the wealthier class from the States, and also from Austria, Germany, England, Brazil, the West Indies and Japan. Not only was the thousand mark easily attained, but after sending out a colony of trained workers to build up and strengthen the western institution, its population in its fiftieth year outnumbered that of any previous year.

The opening of the splendidly equipped institution for Western Pennsylvania at Polk, Venango County, April 21, 1897, marks the first independent action of the state toward mothering her feeble-minded children. To this institution were transferred 154 of those trained at Elwyn, so that beginning with the experience derived from a parent institution, and having the advantage of trained workers and every modern appliance provided by the fostering care of the state, its prosperity and rapid advance in population within 7 years to nearly 900 children, were almost foregone conclusions.

Ohio, which has surpassed all pioneer states in liberal and generous provision for mental defectives, followed close upon New York in the establishment of an institution at Columbus, April 17, 1857. This institution also felt the energizing touch of Dr. Seguin's hand,

and Dr. Doren, during a superintendency of over thirty years, has seen its population more than once pass the thousand mark.

In Connecticut a State Commission appointed in 1855, to investigate existing conditions of defectives, met with a settled conviction among the majority of its citizens that, "their work was a waste of time." Nevertheless, in 1858, a school, opened at Lakeville by Dr. Henry M. Knight, appeared to meet a demand, for it received aid through both public and private donations, and enjoys, in addition, a large private patronage.

The example set by these pioneers was followed with more or less readiness, until the opening of the twentieth century saw 21 states from ocean to ocean, each providing at least one institution, while private schools and special classes have multiplied, so that of the number of mental defectives in the United States, broadly computed at 100,000, at least one-tenth are now receiving some degree of care. In addition, the attention of the public is constantly aroused to the necessity for the segregation and permanent sequestration of these unfortunates, as conducive alike to their own and to the public welfare.

New Jersey for many years depended upon Pennsylvania for the training of her feeble-minded beneficiaries. Although among the latest in the field, she holds, in the Seguin School at Orange, the seal to the lifework of the great progenitor of the entire system. This school, opened by Dr. Seguin in New York City a few years prior to his death, was in 1894 removed by his widow to Orange, where, with 11 teachers, it maintains its limit of 25 pupils, and stands foremost among the private enterprises of its kind in the country.

To the Garrison family is due the successful inauguration of the work along broader lines. Between the years 1845 and 1850, coeval with the effort in New York, Stephen Garrison, of Millville, repeatedly and persistently urged the duty of state provision upon the legislature, of which he was a member. Although his appeals were ineffectual, disappointment did not include failure. The seed sown by him was nurtured and garnered by his two sons who, in 1887, turned their family homestead in Millville into a private school for mental defectives. This soon outgrew accommodations and a change was deemed expedient. Charles Garrison then removed to

Cranberry, where he continued for some years a school of a dozen pupils. His brother, Olin S. Garrison, seeking a wider field, came with his family and seven pupils to Vineland. Here he succeeded in founding an association that laid broad the foundation of the present training-school, and later influenced the creation by the state, of a protective asylum and school for women. Thus do the twin institutions of Vineland owe their existence largely to one who, superintendent of each in turn, saw them rise from small beginnings to well-appointed institutions, enjoying both public and private patronage.

Following the experiments worked out in the continental cities and in England, the special classes for backward children opened first in Providence, Rhode Island, and now part of the educational system of New York, Philadelphia, Chicago, and Boston, are a powerful agent in this work; not only in enlightening the public as to the character of the evil in its midst, but, by demonstrating certain phases of imbecility, removing the obloquy of idiocy from those who may be benefited by training.

In the foregoing historical sketch only the principal institutions for mental defectives in the various countries have been touched upon, but the titles of all, as complete as possible from data obtainable, may be found in the subjoined list.

France.

Bicêtre, Paris. Department for feeble-minded and epileptics.

Salpêtrierè. Department for feeble-minded and epileptics.

L'Institut Médico-Pédagogique, Vitry-Sur-seine. For backward children.

La Force near Bordeaux. Colony for epileptics.

Germany.

Dalldorf near Berlin. For idiots.

Hubertusburg, Saxony. For feeble-minded.

Neu-Erkerode, Braunschweig. For feeble-minded.

Kückenmühle, Stettin-Grünhof, Pomerania. For feeble-minded and epileptics.

Tabor. For epileptics only.

Langenhangen, Hanover. For feeble-minded and epileptics.

Mariaberg, Würtemberg. For feeble-minded.

Mockern, Saxony. For feeble-minded.

Nienstedt on the Harz, Saxony. For feeble-minded and epileptics.

Stetten, Remsthal, Würtemberg. For feeble-minded and epileptics.

Bethel near Bielefeld, Westphalia. For epileptics only.

Rothenburg. For epileptics only.

Neuendettelsau. For feeble-minded and epileptics.

Polsingen. For feeble-minded and epileptics.

Alsterdorf near Hamburg. For feeble-minded, epileptics, cripples, etc.

Düsseldorf near Gladbach. For feeble-minded.

Hochschweitzen, Saxony. For epileptics.

Alice-stift near Darmstadt. For feeble-minded and epileptics.

Grosshennersdorf, Saxony. For feeble-minded.

Freiburg in Silesia. For feeble-minded and epileptics.

Scheuern near Nassau on the Lahn. For idiots.

Westphalia, Niedermarsberg Institutions. For feeble-minded and epileptics.

Dresden, Oppelstrasse, 44/44-B. For feeble-minded.

Ostbahn, Dühlgarten Biesdorf. For epileptics.

Berlin. Municipal Institute for epileptics.

Denmark.

Gamle Bakkehus, near Copenhagen.

Ebberödgaard.

Lillemosegaard.

Karens Minde.

Keller Institutions, Copenhagen and Brejning (Jylland).

Jutland.

Institution for Idiotic Children.

Sweden.

The School of the Society for the Care of Feeble-Minded Children, Stockholm.

Working Home for Idiot Men, Rickomberga, Upsala.

CASE A.

CASE D.

CASE B.

CASE C

CASE E.

IDIO-IMBECILES

PLATE XI

Working Home for Female Idiots, Stockholm.

Institution for Idiots, Sofielund, Stromsholm.

Institution for Idiots, Johannesberg, Mariestad.

Hogelid Asylum for Feeble-Minded Children, Mariestad.

Sodermanlands Lans Institution for Idiots, Strangnas.

Gefle Institution for Feeble-Minded Girls and Small Boys, Gefle.

Gefle Institution for Feeble-Minded Boys, Gefle.

Gefleborgs Lans Working Home for Feeble-Minded Women, Gefle.

Ostergotlands Lans Training School for Feeble-Minded Children, Soderkoping.

Malmohus Lans Institution for Idiots, Lund.

Smalands Home for Idiots, Nannylund, Eksjo.

Orebro Lans Training School for Feeble-Minded Children, Orebro.

Upsala Lans Institution for Idiots, Rickomberga, Upsala.

Upsala Lans Home for Idiots, Karlsro, Upsala.

Stockholm Lans Institution for Idiots, Hammarby, Vasby.

Blekinge Lans Training School for Feeble-Minded Children, Karlshamn.

Christianstads Lans Institution for Idiots, Hessleholm.

Vermlands Lans Training School for Feeble-Minded Children, Karlstad.

Delarnes Home for Idiots, Falun.

Skaraborgs Lans Asylum for Idiots, Skofde.

Training School for Feeble-Minded Children, Stretered, Molndal.

Norrkoping Institution for Feeble-Minded Children, Norrkoping.

Home for Epileptic Children, Mariehall, Sundbyberg.

School for Feeble-Minded Children (Caroline von Vegesacks minnie Carlsvik), Sodertelje.

Institution for Feeble-Minded Children, Traleborg, Jonkoping.

Home for Feeble-Minded Children, Wilhelmsro, Jonkoping.

The Refuge Asylum for Idiots, Wilhelmsdal, Vernamo.

The Refuge Asylum for Untrainable Idiots with or without Epilepsy, Wilhelmsro, Jonkoping.

Asylum for Feeble-Minded Children, Carlslund, Vasby.

Asylum for Untrainable Idiots, Ahus.

Home for Feeble-Minded Children, Goteborg.

Norway.

Linden, Christiania, for idiotic boys.
Thorshaug, Christiania, for idiotic girls and epileptics.
Uren Puddeford, near Bergen, for idiotic children.
Hop, Bergen, for the feeble-minded.
Bergen, schools for backward children.
Christiania, schools for backward children.
Throndbjem, schools for backward children.
Ullersvedsvien School for Feeble-minded Boys.

Russia.

Riga. Institute for feeble-minded children.

Finland.

Jakobsstad. Institute for idiots.
Pistrila. Institute for feeble-minded.
Helsingfors. Institute for feeble-minded.

Holland.

The Hague. Institute for idiots.

Austria.

Prague. Institution for feeble-minded children.
Graz-Styria. Institution for feeble-minded children.
Stephanie Institution, for feeble-minded children, Biedermansdorf near Vienna.
Ybbs Institution for Blind. Department for feeble-minded children.

Switzerland.

Zurich, Hottingen.
Bern, Weissenheim.
Bern, Zur Hoffnung.
Waedensweil, Buehl.
Etoy, Asylum de l'Espérance.
Regensburg, Educational Institute.
Aarau, Biberstein.
Aargau, Bremgarten.
Bremgarten, St. Joseph.

Weinfelden, Friedheim.
Erlenbach, Mariahalden.
Solothurn, Kriegstetten.
Thurgau, Mauren.
Grauhinder, Massano-Chic.
Canton Baselland, Rienberg.
Massaus pri Clure.
Zurich, Dielsdorf, Regensberg.
Zurich, Rosengarten bei Regensberg.

Belgium.

Manage, Hainault. For idiots and epileptics.
Reves, Hainault. For imbecile and backward children.
Limbourg, Asylum of Tessenderloo. For imbeciles.
Lokeren, La Maison, St. Benoit. For feeble-minded children.
Institution of St. Ferdinand. For moral imbeciles, epileptics and feeble-minded.
Guislam, Ghent. School for mental defectives in the insane hospital.
Imbeciles are received at the insane colonies of Gheel and Lierneux.
Ghent, Royghen. Asylum for deaf-mutes, receives imbecile children.
Brussels and Antwerp. Schools for backward children.

Italy.

Vercurago, Province of Bergamo. School for feeble-minded.
Milan. Signora Segatelli's school for backward children.
Classes for feeble-minded in asylums for deaf-mutes in Milan and Alexandria.
Rome. Dr. De Sanctis' school for backward children.
Schools for backward children at Genoa, Rome, Sienna, Reggio-Emilia and Bologna.
School of Saint-John-Persiceto.
The Tuscan School, Settignano, near Florence.

England.

Eastern Counties Asylum, Essex Hall, Colchester.
Western Counties Asylum, Starcross, Exeter.

Midland Counties Idiot Asylum, Knowle, Birmingham.

Earlswood Asylum, Red Hill, Surrey.

Royal Albert Asylum, Lancaster. (*a*) Brunton House Branch for boys. (*b*) The Story Home for girls.

Magdalen Hospital, Bath.

Metropolitan Asylums Board.

Darenth Schools, Dartford, Kent.

Middlesex County Asylum. Annex for Imbeciles.

Winwick Hall for Boys, Lancashire.

Ancaster House, Richmond Hill, Surrey.

Winchester House, Kingston Hill.

Normansfield, Hampton Wick, Middlesex.

Special classes for defective children, numbering some sixty, are scattered throughout London, and there are a number in the provinces.

Scotland.

Larbert, Sterlingshire. Scottish National Institution for Imbecile Children.

Mavisbush, Polton, Midlothian.

Baldovan Asylum for Imbecile Children near Dundee.

Ireland.

Palmerston, Dublin. Stewart Institution for Idiotic and Imbecile Children.

British Colonial.

Canada. Orillia, Ontario.

South Africa. Cape Colony. Grahamstown Insane Asylum; separate department for idiot children.

Australia. Melbourne. Separate department for imbeciles in Kew Insane Asylum.

Adelaide. School for Feeble-Minded Children, Moonee Ponds.

Japan.

Tokyo, Mr. Ishii's (Osuga) institution for feeble-minded children.

Defective children are also received in the Deaf and Dumb Institution at Tokyo.

America.

Massachusetts, Waverly.

" Barre (private).

CASE A.

CASE B.

CASE C.

CASE D.

IMBECILES — LOW-GRADE.

Case C.

Case D.

ADENOMA SEBACEUM.

PLATE III.

Case C.

Case D.

ADENOMA SEBACEUM.

PLATE III

New York, Syracuse.
" " Rome (custodial).
" " Newark (women).
" " Randall's Island.
" " Sonyea (epileptic colony).
Pennsylvania, Elwyn (private, with state patronage).
" Polk.
" Oakbourne (epileptic hospital).
Ohio, Columbus.
Connecticut, Lakeville (private, with state patronage).
Kentucky, Frankfort.
Illinois, Lincoln.
Iowa, Glenwood.
Indiana, Fort Wayne.
Minnesota, Faribault.
Kansas, Winfield.
California, Eldridge.
Nebraska, Beatrice.
New Jersey, Vineland (private, with state patronage).
" " Vineland (women).
" " Skillman (epileptic village).
Maryland, Owings Mills.
Washington, Vancouver.
Michigan, Lapeer.
Wisconsin, Chippewa Falls.
Missouri, Marshall.
New Hampshire, Laconia.
North Dakota, Jamestown.

CHAPTER III.

CLASSIFICATION.

To the student of mental defect the very first requisite is a classification that shall be at once simple and comprehensive, definite and clear. Various leaders in the work have each, from time to time, endeavored to formulate such a classification embodying the results of his study and experience; but the conditions, incident upon diversity of times and nationalities, as well as the differences of bases constituting premises, has so far prevented the adoption of a standard of comparison resulting in one common order of classification.

Yet another obstacle, has been the persistent inclusion of idiocy with insanity in many of the earlier medical writings leading to much misapprehension. Thus as Howe shows, Good establishes the order *Phrenica,* diseases of the brain, and subdivides it into six genera, the last of which, *Moira,* is subdivided into two species: First, *Imbecillis,* imbecility, containing four varieties—first, stupiditas; second, amentia, forgetfulness; third, credulitas; fourth, inconstantia. The second species, *Demens,* irrationality, has three varieties, first, stultitia, folly, silliness; second, larema, dotage, superannuation; third, anœa, idiotism. Here we have 6 genera, 15 species, and 27 varieties of mental disease.

Ray gives two divisions of insanity:

- INSANITY.
  - Defective development of the faculties.
    - *Idiocy.*
      1. Resulting from congenital defect.
      2. Resulting from an obstacle to the development of the faculties, supervening in infancy.
  - Lesion of the faculties subsequent to their development.
    - *Imbecility.*
      1. Resulting from congenital defect.
      2. Resulting from an obstacle to the development of the faculties, supervening in infancy.
    - *Mania.*
      - Intellectual,
        1. General.
        2. Partial.
      - Affective,
        1. General.
        2. Partial.
    - *Dementia.*
      1. Consecutive to mania, or injuries of the brain.
      2. Senile, peculiar to old age.

A comparison of recognized authorities followed up in such order as to embrace the experience of successive periods invites interested study, and may in time prove a means to a much desired end.

The first scientific classification was made by Seguin in 1846, although some observations, most superficial, had been noted previous to this, chiefly among adult imbeciles in asylums for the insane. Seguin, assuming that the mental and moral features of idiocy are dependent upon conditions of the nervous system, based his classification therefore, upon the seat or location of these underlying physical conditions, thus: "The remote cause or source may be physiological or pathological; the immediate cause is in abnormal conditions, either of the central nervous masses or in the nervous apparatus radiating from these centres, and which connect them with the individual environments." Going still further, he enumerates, first, "profound idiocy" as "the chronic affection of a whole or a part of the central nervous masses"; second, "superficial idiocy," "a partial or total affection of the nervous apparatus which ramifies through the tissues and presides over the life of relation"; and third, "backward children" in whom there is a retarded mental development that appears to be "the result of mere functional inactivity of the nervous system."

Esquirol dividing mental defectives into two classes—imbeciles and idiots—makes a subdivision based upon power of speech. In the first degree of imbecility, the speech although easy and rapid consists only of detached words, short phrases or broken sentences. The second shows a yet more limited vocabulary often reduced to mere monosyllables or cries. The third presents absolute mutism.

Howe divided mental defectives into three classes—"idiots, fools, and simpletons." He claimed that "Idiocy, like insanity, may be intellectual or moral or both, and it may include all or any part of those classes of powers, and in any variety or combination."

Duncan and Millard give a classification apparently based upon conditions resulting from disease:

"Class I.—True and profound idiots: solitaires.

"Class II.—Having a slight amount of intelligence, being able to stand and walk a little, and often capable of slight instruction.

"In these two classes the affliction exists at birth, and there are

malformations and disabilities of various parts of the body. They are beings suffering from various functional disturbances, from perversion of special and common sensation, from paralysis of sets of muscles, and from inability to coördinate many more or less complicated muscular movements to a common end.

" Class III.—Able to walk, run, to use their fingers, to be made to attend slightly, to do easy mechanical work, and to feed themselves; memory and perception very weak, and variable in power. Their walking is defective; the voice rarely or never perfect; the memory, intellectual perception, foresight, etc., are very defective and often absent. The power of abstract reasoning is generally wanting and seldom to be traced except in very slight degree. Automatic movements are common.

" Class IV.—Feeble-minded children, adolescents and adults.

" Class V.—Born with perfect intelligence and with the usual gifts of children. A state of mind produced by disease of the brain, epilepsy, hydrocephalus, or by injury to the head. Malformation may or may not exist, and muscular powers with ability to walk or speak are variable.

" Class VI.—Resembling Class V., but the evidence of permanent disease of the brain exists in the form of epileptic seizures and paralysis.

" Class VII.—Cases born with hydrocephalus, or in which the disease has been arrested after it has destroyed, more or less, the power of the brain.

" Class VIII.—Cases of individuals who have been educated and who have become debased in mind and body during youth from vice."

Hack Tuke has chosen a gauge of motor power as the basis of his classification, thus:

" First, Those who exhibit nothing beyond the reflex movements known as the excito-motor.

" Secondly, Those whose reflex acts are consensual or sensori-motor, including those of an ideo-motor and emotional character.

" Thirdly, Those who manifest volition—whose ideas produce some intellectual operations and consequent will."

Griesinger gives a classification embracing five types:

"1. Well-formed children, in whom the mental development, which remains at the lowest grade, is the only apparent defect, the defect not being due to any hereditary, but to some accidental cause of degeneration.

"2. The cases in which both bodily and mental development have been palpably arrested: these are the dwarfs in mind and body.

"3. The Cretin, or basilar-synostotic type of idiocy or imbecility.

"4. The Aztec type, consisting of the microcephalic idiots.

"5. The theroid idiots, who have a sort of resemblance to some animal."

Hoffbauer gives three classes. The first and second stand related according to comparative powers of judgment; the third altogether clouded with delusions of evil and attacks of passionate anger approaching to insanity:

"The first class was unable to form a judgment on a new subject no matter how simple. He could judge well, however, on familiar subjects. Memory weak, although he observes a certain routine of occupation with scrupulous exactness. He is not liable to talk much of himself, but is liable to sudden paroxysms of anger.

"The second degree is even less capable to judge and act in regard to his accustomed occupations. He is exceedingly confused in regard to the place in which he is and the person with whom he converses, and is very generally at fault in regard to his ideas of time.

"In the third degree of imbecility there is more reason to apprehend danger from the individual affected with it; for he has delusions of the evil intentions of others, and is not only passionate, but suspicious and misanthropic. He frequently talks to himself. Thinking aloud, however, is no proof of imbecility."

J. Langdon Down considered "the best classification of idiocy, the one which most assists in the prognosis and treatment, is that which is based on its etiology. The whole of the cases may be divided into three important groups, which groups afterwards admit of subdivision. The primary groups are: (1) *Congenital;* (2) *Developmental,* and (3) *Accidental.*

"1. *Congenital Idiocy.*—The congenital group includes all those cases which at the period of birth manifest signs of defective mental power, associated usually with conditions of the head, skin, and

other organs, which are indicative of a congenital origin. They are cases which have never possessed ordinary mental power. The congenital group contains the following subdivisions: (*a*) *Strumous;* (*b*) *Microcephalic;* (*c*) *Macrocephalic;* (*d*) *Hydrocephalic;* (*e*) *Eclampsic;* (*f*) *Epileptic;* (*g*) *Paralytic;* and (*h*) *Choreic.*

"2. *Developmental Idiocy.*—The developmental group includes a smaller number of cases, where the child is born manifesting an average intelligence through infancy, or even up to the commencement of puberty, but from causes which have influenced the nutrition of the embryo during its intra-uterine life, is born with a proclivity to mental break-down during one of the developmental crises; the crises being the periods of the first dentition, and of puberty. The group includes those cases in which speech and mental faculties are lost in children in whom previously the intelligence was good—cases where the brain and nervous power was sufficient for its early years, but insufficient to carry it through evolutional stages. They usually present outward signs in their cranium or elsewhere that the tendency to catastrophe was born with them. The developmental group embraces the following subdivisions: (*a*) *Eclampsic;* (*b*) *Epileptic,* and (*c*) *Choreic.*

"3. *Accidental Idiocy.*—The accidental group includes all those cases of idiocy where the child has been born with a normal nervous system, free from any present or potential defect, when unfortunately a fall, a fright, epilepsy, the result of some peripheral irritation, disease of the bones of the ear sequential to measles or scarlet fever, meningitis, or other cause, may lead before puberty to mental break-down—a break-down not of a genetic, but of a purely accidental origin. The accidental group includes: (*a*) *Traumatic;* (*b*) *Inflammatory;* and (*c*) *Epileptic Idiocy.*"

Down gives later a physiognomical or ethnological classification, *i. e.,* Caucasian, Ethiopian, Malay, Mongolian or Kalmuck, and what he is pleased to call the American Indian type. Based upon an idea of mere physical resemblance there seems to be no further analogy of racial characteristics, and it proves therefore more interesting to the curious than useful to the practical observer, more particularly as the Mongolian and Negroid types belong almost exclusively to the idio-imbecile or imbeciles of low-grade.

The Malay type I have never met. Of the American Indian type, in which according to Down "moral and intellectual characteristics can scarcely be said to exist," I have two cases, both imbeciles—one high-grade, remarkably bright, and the other low-grade, improvable. Down ascribes to phthisis the production of the Mongolian or Kalmuck type, to which he refers 10 per cent. of all cases of idiocy; but I find it occurring in only .09 per cent. nor do I find evidence why this special type should spring from phthisis rather than from other causes, as only about one fourth of my cases of Mongolianism had a phthisical history and with these there were various complications.

Again old age in parents has been considered a cause of Mongolianism, but I know of but one instance in which this could be ascribed, the father being 75, and the mother 48 years of age, the average age of parents being 36 for the fathers and 33 for the mothers. It is also said that last-born children are apt to be Mongolians, but I find of this but one case. Indeed I do not find data sufficiently reliable to affirm any one cause above another in the production of this type.

Ireland bases his classification on pathologic conditions. He says: "I found it was necessary to have some arrangement in order to say clearly what I wanted to say.

"Coming to the study of idiocy after having gained some experience in medicine, I have from the beginning viewed it from the standpoint of pathology; and my idea of idiocy is compounded of the following classes, which are generalized from individual existing idiots, who resemble one another by having the same or similar diseases, as they resemble the type of idiocy by having mental deficiency along with a corporeal disease.

"1. Genetous idiocy.
"2. Microcephalic idiocy.
"3. Hydrocephalic idiocy.
"4. Eclampsic idiocy.
"5. Epileptic idiocy.
"6. Paralytic idiocy.
"7. Traumatic idiocy.
"8. Inflammatory idiocy (the result of encephalitis).
"9. Sclerotic idiocy.

"10. Syphilitic idiocy.

"11. Cretinism (including the endemic and sporadic or myxoedematous forms).

"12. Idiocy by deprivation (in which the child is deprived of two or more of the principal senses—such as sight and hearing, with consequent enfeeblement or actual loss of mental power."

Shuttleworth, like Ireland, classes his cases pathologically. He says: "In connection with mental deficiency we find two main divisions of cerebral abnormality—(*a*) that arising from formative or developmental defect, and (*b*) that resulting from inflammatory or degenerative processes. Each class of abnormality corresponds, of course, to the broad primary classification of cases of mental deficiency into—(*a*) CONGENITAL and (*b*) NON-CONGENITAL. There is, however, a mixed class of cases in which the actual lesion supervenes upon a brain originally imperfect in development, and to such cases, occurring at a crisis of early life, has been given the name of DEVELOPMENTAL."

He goes on to classify congenital mental deficiency thus:

1. Microcephalus, and other formative cerebral defects.
2. Hydrocephalus (congenital).
3. "Mongol" or "Kalmuc" type.
4. Scrofulous cases.
5. Birth-palsies with athetosis.
6. Cretinism (congenital).
7. Primarily neurotic.

He further sums up the non-congenital type of mental weakness thus:

A. Developmental cases:
   1. Eclampsic.
   2. Epileptic.
   3. Syphilitic (inherited).

B. Accidental or acquired:
   1. Traumatic } inflammatory lesions.
   2. Post-febrile }
   3. Emotional.
   4. Toxic.

He further suggests that the term subnormal or mentally feeble ubstituted for imbecile or idiot and feeble-minded.

Pilferings by Case D.

IMBECILE — LOW-GRADE.

Case E.

Plate XIII.

The school board of London has adopted the following classification in the medical examination of children for the special schools:

" 1. Those requiring special instruction.

" 2. Those capable of continuing in the ordinary school.

" 3. Those whose mental condition is too low for instruction, even in special classes. These last are excluded with a recommendation to their friends to obtain admission for them into an institution for imbeciles."

Kerlin follows Griesinger in naming two conditions of idiocy—the apathetic and the excitable—classing as idiots " those whose intelligence is so slight as to be subjects for habit training only in life-long asylum care." He adds: " I have thrown the class *imbecile* into three groups—five or six might have been made—the individuals of the lowest dropping almost into idiocy, are susceptible of some culture of the hand and eye, have a slight command of language, sign or vocal, in communicating their desires and a low degree of attention, imitation, etc. The middle grade imbeciles are much superior to the low, while the high or best grade are possessed of all the attributes of intelligence in a limited degree; they are taught to read and write in some instances fluently, to calculate minor questions of arithmetic, and approach the lower range of common intelligence in their relations to life as found among the ignorant; in their most advanced grade they are lacking only in those powers of discrimination, judgment, and will power, the attributes of a sound man; if they exercise them at all it is in mimicry of associates and superiors, rather than from their personal possession. I also recognize a condition analogous to *excitable* idiocy, among *imbecile* children whose mental powers are susceptible of normal development, but whose will power and discrimination of right and wrong seem to be strangely perverted from infancy. I have chosen to call these, instances of juvenile insanity, following for the name the excellent lead of some distinguished writers."

These classes and grades are thus represented in tabular form:

" Apathetic idiots.

" Excitable idiots.

" Low grade imbeciles.

" Middle-grade imbeciles.

"High grade or first imbeciles.

"Juvenile insane imbeciles."

This last—the juvenile insane imbecile—being not a *type* but a *combination of disease and defect* which might have place in any and every grade of imbecility, Dr. Kerlin must have recognized as illogical in a classification, for he later adopts the term moral imbecile, as used by Howe and Seguin to designate that form of defect displayed in the moral nature which may or may not be associated with mental defect, but amounting often to a total absence of the moral sense. The portrayal of this as a distinct type, and his insistence upon the imperative demand for it of perpetual sequestration, constitutes Dr. Kerlin's chief contribution to the work.

His subdivision of the imbecile class is clearly along the line of Seguin's indications that the primary aim of classification is to attain a gauge of mental capacity that shall facilitate training. In his third or high-grade imbecile, which answers to the simpleton of Howe, he fills the hiatus between the second order of Seguin's and the feebly-gifted or backward, which Seguin alludes to, but which is not included in any of the classifications we have been considering.

In a study of these various authorities, by comparing the aim of the one with the apparent aims of the many, and these again with the data which experience is daily contributing, we naturally seek to find points of agreement in classification seemingly opposed; to reconcile apparent differences; to weigh carefully scientific and practical values; and gradually by a process of elimination and condensation to arrive at a classification which, as addressing itself to the needs of the greatest number, shall further the best interests of the work.

That the pathological classification of Down, Ireland and Shuttleworth is valuable, none will deny, for it is to the pathology of idiocy that we look for light in etiology, diagnosis, and prognosis, but pathology needs still to pursue its invaluable work of the collection of facts regarding idiocy, for as yet its researches in this field have not gathered sufficient data on which to base authoritative opinion.

As far back as 1877, H. C. Wilbur discussing classification before the Association of Medical Officers of American Institutions, while endorsing the pathological from a medical standpoint, adds: "It

should be borne in mind that the essential fact of idiocy is the mental deficiency; that the actual work of obviating the condition is an educational one, using the term in a broad sense; and if any favorable effect is produced upon abnormal organic states, it will ordinarily be through the reflex action of properly adjusted mental exercises. Incidentally, we notice the associated pathological conditions or complications, less from their supposed relation as causes of the idiocy, but as interfering, to a greater or less degree, with our efforts at instruction or training. The manifestations upon which we base our prognosis are more subtile than the accompanying conditions of microcephalus or paralysis, or others that form the basis of any pathological classification.

"Do we not need some effective form of description of our cases; some generally recognized tests of physical and mental condition that will show, in the first place, the starting-point in the pupil's career, to which reference can be made from time to time to test their absolute or relative progress? Do we not need some mile-posts along in the educational path to the same end?

"I commend, then, to your attention the hitherto undefined and unrecorded signs and features of mental and moral condition, the peculiar habits of the different shades and grades of idiocy, that at our next or some future meeting we may be able to agree upon some form of classification that shall meet the need I have spoken of."

Not only do we find it necessary to have sound argument in order to say clearly what we want to say, as Ireland expresses it, but we must consider the large number to be enlightened through this argument; and furthermore that the general public, the parents and the teachers and attendants engaged in the work need a classification that shall be an exponent guiding them away from the fallacy and delusion of cure, into the actual possibility that the child, always defective, may yet accomplish. Experience has made clear and has gradually evolved a consensus that our one great aim is not cure, but a three-fold protection. Protection of the helpless from want; of the irresponsible from ignorance, vice and the penalty of crime; and lastly, the protection of the family and the state from the evils of association and of certain increase. To accomplish this, we must address the public in terms that he who runs may read and in terms,

moreover, that do not offend the sensitive. It is upon such principles, whether avowed or unavowed, that in America the expression feeble-minded has come to be the term covering every phase of mental defect, and our training-schools have increased as they never could have done under the misnomer of schools for idiots. Not only is its meaning plain and therefore acceptable to the popular mind, but it forms a logical basis for the reasoning of both physicians and teachers. It is broad and covers much, is easily understood, and best of all it is true. All are feeble in varying degrees, needing various modes of treatment or of training; and as aids to treatment and training many of the terms used in the different classifications are undoubtedly invaluable.

The first step in a scheme of general protection is naturally to consider the helpless and the untrainable; and what more natural than to class him according to the literal meaning of the word in the original Greek, as *idiot*—one solitary, alone, and therefore needing for life, care in asylum. There, whether excitable or apathetic, we place him and can study him and treat him under all the forms enumerated. But whether he be microcephalic or hydrocephalic, paralytic or epileptic, Mongolian or Ethiopian, he presents the lowest form of mendefect—idiocy—and we can make the public understand that as such, he is absolutely untrainable, often unimprovable.

In the next class we find those who are to be protected from ignorance and vice. Protection from ignorance presupposes a capacity for sense training, and for adaptation to environment, varying in degree from ability for the very simplest offices of self-help or aid to another, to that of a certain dexterity in the industrial and manual arts under direction. He may be fool or simpleton, he may or may not be lacking in power of speech or of locomotion, yet always he is feeble, vacillating, needing a support, a staff—therefore *imbecile*. Thus experience and reasoning have brought us from the generic title feeble-minded, to its two large sub-divisions, idiot and imbecile, which indicate according to the strict meaning of the words in the original tongues, one the solitary, the other the totterer; and which separate therefore our helpless and untrainable from our unstable but nevertheless trainable and possibly helpful class. These two states are naturally traceable to nervous conditions, also distinct and dif-

CASE A.

CASE B.

CASE C.

CASE D.

IMBECILES — MIDDLE-GRADE.

ferent, due to causes congenital or accidental, and here is entire accord with the foundation of Seguin's argument.

The protection which society demands and needs to be advised of is, first from the burden of the untrainable idiot both in the homes and training schools, and also in the institutions designed for other kinds of defectives, *i. e.*, those for the blind and deaf-mute; second from the disadvantage resulting from the intermingling in the schools of normal with backward children; third from the mischief which whether trained or untrained the irresponsible imbecile is liable to perpetrate if unguarded; still more from the tragedies certain to be enacted by the moral imbecile, and above all else, protection from increase of an evil growth which if unchecked is inevitable.

These considerations, the outgrowth of practical experience and of necessity for response to frequent appeals for just such information, has led the author to formulate an educational classification, giving the extremes, and intermediate grades of mental defect; and not only defining the status of the individual, but indicating methods of training together with future possibilities.

EDUCATIONAL CLASSIFICATION

OF

THE FEEBLE-MINDED.

Asylum Care.

IDIOT.

Profound. { Apathetic. / Excitable. } Unimprovable.

Superficial. { Apathetic. / Excitable. } Improvable in self-help only.

IDIO-IMBECILE.

Improvable in self-help and helpfulness.
Trainable in very limited degree to assist others.

Custodial Life and Perpetual Guardianship.

MORAL IMBECILE.

Mentally and morally deficient.
Low Grade: Trainable in industrial occupations; temperament bestial.
Middle Grade: Trainable in industrial and manual occupations; a plotter of mischief.
High Grade: Trainable in manual and intellectual arts; with a genius for evil.

Long Apprenticeship and Colony Life Under Protection.

IMBECILE.

Mentally deficient.
Low Grade: Trainable in industrial and simplest manual occupations.
Middle Grade: Trainable in manual arts and simplest mental acquirements.
High Grade: Trainable in manual and intellectual arts.

Trained for a Place in the World.

BACKWARD OR MENTALLY FEEBLE.

Mental processes normal, but slow and requiring special training and environment to prevent deterioration; defect imminent under slightest provocation, such as excitement, over-stimulation or illness.

CHAPTER IV.

ETIOLOGY.

THE study of the etiology of idiocy and imbecility assumes a new aspect in view of the rapid and startling growth of many phases of mental defect. That it might meet urgent demand with such suggestions which, if accepted, should at least stem the tide of a fateful heredity, would be indeed a consummation fitly crowning the labors of those contributing to its records; and a verification of the prophecy of Descartes " that if it be possible to perfect mankind, the means of doing it will be found in the medical sciences."

The impossibility of dogmatic assertion as to any one cause being the supreme agent of degeneration is obvious, in view of the countless influences of heredity, environment and accident enveloping the human organism from the moment of conception to that of dissolution. By a separation of life into periods, however, and collecting data sufficient for the basis of an opinion, one may arrive at a knowledge of that period apparently most sensitive to disturbing influences. Next, a consideration of the circumstances peculiar to each period, should lead to an enumeration of causes and averages that would, in time, finally establish a graduated order of causes giving a trustworthy basis for yet closer work. For example, having found a priority in period, and then the predominating influence in that period, one should in encountering a variety of influences give credit without hesitation to that one whose priority or prepotency had already been established.

Take an instance of a bright child reduced to idiocy after a fall or sudden fright. The family history may show an intemperate father and an inheritance direct and collateral for generations back, of imbecility. Researches having shown the period preceding birth to be that most susceptible to influence, and an heredity of mental defect the most powerful factor; the actual cause would be neither the accident, nor the intemperance of the father, which would only

be agents assisting in developing the evil, latent and really engendered by an inheritance of imbecility.

Pursuing this convenient method of research two studies have been made on somewhat similar lines, coinciding as to periods but differing as to combinations of causes. One of 2,380 cases, a collaboration of Drs. Beach and Shuttleworth, from the books of the Darenth and the Royal Albert Asylums, England—the other of 3,050 cases compiled by the author from various sources, but chiefly from the records of the Pennsylvania Training School.

An aggregate of these 5,430 cases, showing similarity in the preponderating influences of distinct periods, gives a collection of data that should go far to establish a consensus that the strongest predisposing causes are those acting to transmit mental defect direct, or to so combine and commingle neurotic tendencies as to produce it. Not only are we called to consider the physical, intellectual and moral relations of inheritance, immediate and collateral, but the intra-uterine life as well. Who then dare assert that all are born free and equal "when inheritance enslaves with ghostly hands that reach from graves"? A comparison of these tables shows an agreement as to the order of periods, the predominating influences in both being found before birth, next in the period after birth, whereas the least are those operating at birth. The Elwyn table shows 64.85 per cent. of the whole in the first, 32.23 per cent. in the second, and only 2.92 per cent. in the last named.

In a consideration of priority of causes acting before birth, according to percentages given, we find in the Darenth and the Royal Albert table the largest percentage in the abnormal condition of mothers during gestation, a record of 711 cases giving 29.87 per cent. The Elwyn table places this cause second, 259 cases giving 8.49 per cent., but finds its first cause and largest percentage in an heredity of imbecility, 835 cases, giving 27.38 per cent., which ranks third in the English table, 117 cases—4.69 per cent.

This divergence may be more apparent than actual, if viewed as all such observations must naturally be in the light of associated conditions, and in proportion as this includes a comparison of both social and national life it becomes the more interesting. The high percentage of the Darenth cases is ascribed by Dr. Beach to the

CASE E.

CASE F.

CASE G.

CASE H.

IMBECILES — MIDDLE-GRADE.

	Royal Albert Asylum, 1,500 Cases.		Darenth Asylum, 1,180 Cases.		Total, 2,380 Cases.	
	Number of Times Recorded.	Percentage.	Number of Times Recorded.	Percentage.	Number of Times Recorded.	Percentage.
I. Causes acting before birth :						
Family history of (*A*) Phthisis	291	24.25	383	32.45	674	28.31
(*B*) Insanity	182	15.17 } 20.08	210	17.79 } 22.71	392	16.47 } 21.38
(*C*) Imbecility	59	4.91 }	58	4.91 }	117	4.69 }
(*D*) Epilepsy alone	41	3.41	116	14.06 } 36.86	207	8.69 } 20.00
(*a*) Other neuroses	—	—	269	22.79 }	269	11.30 }
(*E*) Intemperance	159	13.25	231	19.57	390	16.38
(*F*) Syphilis	16	1.33	12	1.01	28	1.17
Parental or grand-parental (*G*) Consanguinity	70	5.83	30	2.54	100	4.20
Abnormal condition of mother during gestation :						
(*A*) Physical	66 } 257	21.41	59 } 454	38.47	711	29.87
(*B*) Mental	191 }		395 }			
Old age of Parents	3	0.25				
Illegitimacy	23	1.91	19	1.61	42	1.76
II. Causes acting at birth :						
Premature birth	37	3.08	47	3.98	84	3.52
Primogeniture	228	19.00	264	22.36	492	20.67
Prolonged parturition : (*a*) Protracted pressure	57	4.75	282	23.89	339	14.24
(*b*) Instrumental delivery	39	3.25	40	3.38	79	3.31
(*c*) Asphyxia	*	—	153	12.96		
Accident at birth	27	2.25	9	0.76	36	1.51
Twin birth	17	1.41	6	0.50	23	0.96
III. Causes acting after birth :						
Infantile convulsions (eclampsia)	391	32.58	261	22.11	652	27.39
Epilepsy and cerebral affections	57	4.75	136 (epilepsy)	11.52	193	8.11
Paralysis (infantile)	15	1.25	7	0.50	22	0.92
Injury to head from fall, blow, etc	99	8.25	48	4.06	147	6.17
Fright or shock (mental)	27	2.25	46	3.89	73	3.06
Sunstroke	8	0.66	5	0.42	13	0.54
Febrile illness, *e. g.*, scarlatina, whooping cough, measles, typhoid fever, smallpox	119	9.91	23	1.94	142	5.96
Overpressure at school	3	0.25	1	.08	4	0.16

* Information imperfect on this point.

From A Dictionary of Psychological Medicine, D. Hack Tuke, p. 664. 1892.

AMERICAN TABLE.

I. Causes Acting Before Birth	No. of Cases.	Percentage.
Family history of Idiocy and Imbecility.	835	27.38
Abnormal condition of mother during gestation. A. Physical	155	5.08
Abnormal condition of mother during gestation. B. Mental...	104	3.41
	259	8.49
Family history of Phthisis	231	7.57
" Insanity	216	7.08
" Intemperance	136	4.46
" Epilepsy.	92	3.02
" Minor neuroses	79	2.58
" Consanguinity.	41	1.34
" Scrofula	36	1.18
" Cancer	25	.82
" Diseases of the cardio-vascular system.	18	.59
" Syphilis	6	.20
" Goitre	2	.07
" Attempted abortion	2	.07
Total No. of Cases	1,978	64.85

II. Causes Acting at Birth.	No. of Cases.	Percentage.
Premature birth.	34	1.11
Difficult labor.	18	.59
Accidents.	18	.59
Instrumental delivery.	15	.5
Deficient animation.	4	.13
Total No. of Cases.	89	2.92

TOTALS.

Period.	No. of Cases.	Percentage.
I. Causes acting before birth.	1,978	64.85
II. Causes acting at birth.	89	2.92
III. Causes acting after birth.	983	32.23
Total No. of Cases.	3,050	100.00

III. Causes Acting After Birth.	No. of Cases.	Percentage.
Injury to head from falls.	191	6.26
Epilepsy.	180	5.90
Acute diseases.	136	4.46
Scarlatina	84	2.75
Meningitis.	80	2.62
Accidents.	51	1.67
Tuberculosis.	39	1.28
Gastro-intestinal diseases	28	.92
Abuse of drugs.	25	.82
Measles.	24	.79
Abuse, neglect, exposure.	20	.66
Whooping cough.	19	.62
Masturbation.	18	.59
Infantile paralyses.	17	.56
Typhoid fever.	16	.53
Marasmus.	14	.46
Insolation.	13	.43
Spinal diseases.	12	.39
Diphtheria.	8	.26
La grippe.	3	.09
Chorea.	2	.07
Hydrocephalus.	2	.07
Tobacco.	1	.03
Total No. of Cases.	983	32.23

low physical and mental condition of the parents. This would imply that they were on the border-line of imbecility, a condition easily intensified, in the pauper class to which they largely belonged, by the struggle for existence. Poverty, hard work, not infrequent intemperance, and many anxieties added to the physical sufferings of the period, might so press upon the mother as for the time to reduce her to a state of quasi-imbecility. If, added to this, she should have brought to her office of motherhood that exhausted vitality from a child-life in the factories, of which so much was heard in England, such a condition would provide fruitful soil for such a development of neuroses latent in the mother, as to constitute in her offspring almost a direct inheritance of defect.

Similarly, exhausted vitality has doubtless contributed to both the first and the second causes exhibited in the Elwyn table, *i. e.*, inheritance of imbecility and condition of mothers during gestation. This is not so much from the struggle for existence, as from excitement of competition so marked in America as interpenetrating the life of the masses from which these cases were drawn, subsequent to a period when a high-pressure system of purely intellectual attainment strongly characterized the schools of the country. As a writer so aptly puts it: "The American mother wants her child to be, do, and have everything." Thus many young parents from their own cradles to that of their first-born, passed from one stage of unrest to another; a condition liable to quicken rather than to retard neurotic tendencies in themselves, with the almost certain result of developing in their offspring any defect, latent though it may have been for generations.

Down thinks the mental and physical health of mothers during pregnancy of much importance. In 20 per cent. of 2,000 cases there was marked physical disturbance; in 4 per cent. of these a history of serious falls; in 32 per cent. a well-ascertained history of great mental disturbance—distressing tidings of failures, trouble or death.

Howe also felt that the condition of mothers during gestation had an important bearing, but in the cases examined by his commission there was either habitual drunkenness, epilepsy or other neuroses.

Griesinger believes that violent shock and grief cause idiocy but gives no statistics. Grabham found this cause in 85—nearly 16 per cent.—of 543 cases.

Rogers gives 58 or 11.6 per cent. of 500 cases, and Kerlin 7 per cent. of 100 cases due to abnormal condition of mother.

Striking examples of the influence of the condition of mothers upon offspring is found in the accounts given by the famous French military surgeon, Baron Percy, and by Dr. W. B. Carpenter, of the siege of Landau, in 1793; of the 92 children born within a few months, of mothers exposed to the terrors of the cannonading and the blowing up of the arsenal—16 died at birth, 8 were idiotic and died before they attained the age of five years, 33 more or less defective died within ten months and 2 were born with fractured limbs.

Down states that similar results followed the Siege of Lucknow.

Mr. Ishii (Osuga), of Tokyo, recounts the effect of an earthquake, a few years since, upon the Japanese women then *enceinte,* resulting in the birth of a large number of idiotic and imbecile children.

Paget cites a case of a girl with a thick harsh crop of brown hair on back and arms who bore a striking resemblance to a monkey. The mother had received a sudden shock caused by the monkey of an organ-grinder springing upon her back.

I have two cases somewhat similar among my patients. A boy born a veritable Esau, with a thick growth of reddish hair on back and chest; the mother during pregnancy was chased by a cow.

A woman three months pregnant attending a circus was much frightened by a " freak " exhibited under the name of " What is it?" Her child—an idiot girl—born at full term, presented a most extraordinarily Calibanish appearance.

One might go on with such examples *ad infinitum,* but those cited are sufficient to show that the immediate effect of shock or physical strain, is such an abnormal condition in the mother as to result in direct transmission of idiocy or imbecility from her to the child.

Hervey B. Wilbur says: " The underlying cause may be primary, as an arrest of development of nervous structure, imperfection in quantity or quality, or again from failure in functional activity of the same. We know, also, that even where the central nervous masses are in tolerably healthy condition, imperfection or failure in activity of the nerves of relation prevents or impedes cerebral development and the exercise of the higher mental faculties."

The idea, of course, is subjective, and he is referring to the influence of the progenitor upon the inheritor; yet could he have chosen clearer words to describe the actual condition, familiar to every physician, of many mothers during this trying period, more especially if, being primipara, it be a development of an absolutely new experience. Researches into the effect of environment, of emotional life, and of what is termed "use heredity" go far to prove that these influences prolonged and acting and reacting upon unstable nerve centers throughout the period of parturition, tend to create a condition in the mother so abnormal as to constitute direct transmission by her to offspring of weakness—mental, moral or physical—singly or associated, just in proportion to the character and to the pressure of the influence, and also to the character of any neurosis latent, but waiting "on call" to arouse to what may be only temporary, and for that reason unrecognized, activity in the mother, and to become evident in the enfeebled constitution of the child. Why should not this be quite as logical as is the accepted theory of the results of the procreative act during a debauch? For it is not necessarily the intemperate habit that is transmitted, but the enfeebled quality—the utter degenerate make up of a drunken man or woman that is reproduced in their imbecile child. Almost direct confirmation of this appears in the fact that a *mentally* abnormal condition is distinctly specified in the majority of the Beach and Shuttleworth cases. Viewed in this light it becomes evident that the first causes in the two tables more than approximate, for they are largely identical.

If, as Ribot says: "Among the various functions which in their united action constitute life two are primary, nutrition, which preserves the individual, and generation, which perpetuates the species," then that influence which tends most to hamper the one, and to injure or exaggerate the other, is the surest enemy to healthful life, the foe most to be dreaded; and this I contend is an inheritance of mental defect of which the condition of the mother during gestation is as we have seen largely one and the same. An heredity of disease may be purely physiological, breaking down the physical powers, but not necessarily the mental; but heredity of imbecility is both physiologic and psychologic, the whole being, physical, mental, and moral, enters starved upon a maimed existence—idiotic or imbecile. This is no

fanciful theory, the 835 cases at the head of my table attesting to a stern reality. The completeness and the general diffuseness of the degenerative condition induced by an heredity of imbecility—which I have found in all my studies, from profound idiocy up through the higher grades—has so convinced me of its activity as an agent in that malnutrition to which all influences tend; that upon finding it in a family history I feel no hesitancy in assigning it as the primary cause to which all others are subsidiary; not only readily assimilating with them, but by disintegration and enfeeblement actually predisposing the system to their attack. The fatality of such heredity is evidenced in its repetition, not infrequently several members of one family showing its influence, and unfortunately such families are not apt to number few individuals; for the animal instincts increase in proportion to the enfeeblement of the mental powers, so that brothers and sisters mentally defective are by no means the exception. Indeed a large proportion of the families from which I have severally drawn my cases show this reduplication: such as, 3 families with 3 each; 2 families with 5 each; 1 with 4; and 1 family with 2 imbecile children had a connection of 83 mental defectives, the result of a century of imbecile heredity.

A man of 38 years, feeble-minded, has a delicate wife who in twenty years has born him 19 defective children.

Another family numbers 12, all mentally deficient in varying grades, the father being a high-grade imbecile.

Yet another shows three generations of defect. The maternal grandmother feeble-minded; the mother a feeble-minded epileptic; the father a shiftless irresponsible unable to provide for his family of seven idiotic and imbecile children.

The L. family numbers 7 individuals; parents and children all imbecile. The family history shows some 32 relatives of the father to be feeble-minded, and the mother has a feeble-minded sister. The 5 children—2 boys and 3 girls—imbeciles of high and middle-grade, have been trained in manual and industrial work. The girls, who both sing and dance, are quite proficient in household service, plain sewing, embroidery and tapestry-weaving, and one boy is an excellent baker. All work well under direction and protection, but the eldest girl, going out in the world to earn a livelihood in domestic service, soon went astray.

Grabham's testimony reads: "Nearly 65 per cent. of my 800 cases are stated to be congenitally defective; and, when we consider how difficult it is, even for a skilled observer, to detect idiocy in early infancy, we may feel sure that this percentage has not been overstated. In about 18 per cent., hereditary taint is admitted; but I am convinced that it exists in a far greater proportion." Kerlin reaches a similar conclusion, his study of 100 cases giving also 18 per cent.

Rogers in his study of 500 cases found 8, or 1.6 per cent. direct heredity, and 15, or 3 per cent. indirect. In 156 cases where no cause was assigned he found 29, or 18.6 per cent., had relatives who were feeble-minded.

Down thinks there can be no doubt that one of the great causes of idiocy is heredity and adds: "In only 16 per cent. did I fail in obtaining a grave history of physical or psychical decadence."

Ireland states that it has been repeatedly observed that families in which neuropathic members appear, are often more prolific than the average. He gives no statistics of imbecile heredity, but states that the children of feeble-minded women are likely to inherit the mental weakness of the mother, and shows how this is confirmed by the report of the Scottish Lunacy Commission which records 126 imbecile women with children all more or less defective.

The Massachusetts Commission, 1848, in its report of 574 idiots, shows over 22 per cent. due to heredity of mental defect, direct or collateral, thus: 49 idiotic persons who have 1 near relative idiotic; 9 who have 2; 6 with 3; 4 with 4; 6 with 5; 3 with 10; 1 with 19; 50 whose parents are either idiotic or insane, and 21 who are themselves parents. This is interesting when compared with the Eighth Annual Report of the Massachusetts State Board of Public Charities in 1872, which states that "idiots increase in numbers, and the rate of increase is greater than that of the general population."

The Connecticut Commission in its investigations as far back as 1856 found 51 idiots in 17 families, being an average of 3 to a family, and 2 families had each 5 idiots. It further reports two or three towns in which there are families wholly imbecile—both parents and children. "In one instance, where a pauper female idiot lived in one town, the town authorities hired an idiot belonging to

another town, and not then a pauper, to marry her, and the result has been that the town to which the male idiot belongs, has for many years had to support the pair and the 3 idiot children."

Adequate cause is reported for 310 of 531 cases examined: of these, defective mental capacity in one or both parents is noted in 65 of 185 cases; consanguinity in 20 cases; tendencies to consumption, scrofula or eruptive disease 41 of 145; fright or grief to mother during the period of gestation in 53 out of 108 cases; epilepsy in 76; masturbation in 19; feeble condition of parents 33 of 163 cases; insanity, blindness and mixed neuroses in 70 of 164 cases; and vicious habits of parents—what we would doubtless class as moral imbecility, in which, however, intemperance (76 cases) is included —in 95 out of 235 cases. As will readily be seen a large proportion of these causes may be resolved according to our previous argument into an heredity of imbecility.

The Illinois State Board of Public Charities in 1870 deplores "the association of the sexes," which in most almshouses could not then be prevented, leading "to unmentionable evils of which one is the perpetuation of the degeneration of the race." This would seem to point to imbecile heredity as an active agent in the statistics given of 65 families in which there were 2 idiots each; 25 with 3; 2 with 4; 1 with 5, and 1 with 6; 94 families in all, with an aggregate of 224 idiot children.

There is yet another strain in this most pernicious of all heredities, of which numerous examples may be cited without referring to the many which criminology gives; crimes of which defectives are often the innocent authors, and which are repeatedly traceable to the influence of an heredity not immoral but ammoral. Studies in anthropology have proven that the presence or absence of certain physical peculiarities or characteristics in the progenitor is certain to be manifested in progeny in one or another generation, and psychology attests with equal insistence to the power of heredity over the psychic attributes. Now in *ammoral* imbecility there is partial or absolute absence of the moral sense often as complete as is the absence of sight in the blind. This may not necessarily be associated with physical or mental defect, but it constitutes a defect of its own—a phase in which moreover there is regular and persistent degeneration, and

Case I.

IMBECILES — MIDDLE-GRADE.

Case J.

Plate XVI.

its influence in heredity is far-reaching, liable to reappear in its own or in another form of defect. The following are examples, not exceptions, of an unvarying rule.

J. S., a man of high social position, was closely related to one of the famous presidential families; his wife one of three sisters all noted beauties. With every advantage of education and culture, a gifted artist excelling in miniature painting, in which he gained a reputation for exquisite delicacy of coloring and attention to detail; he was nevertheless a moral imbecile, brutal in his treatment of his children and of the wife with whom he lived for over forty years in a silence unbroken by the interchange of a single word. Of five children—three sons and two daughters—two sons inheriting all their father's brilliancy and artistic tastes were moral imbeciles; one a thief, a liar, a profligate and a fugitive from justice; the other a minister of religion admired for his talents, but untruthful, dishonest and unreliable, losing the esteem of all good people as rapidly as he gained it; had a son, also a pronounced moral imbecile.

Of the three normal children, a daughter inheriting her mother's beauty, had three sons all mentally defective. Another example of atavism or latent neurosis, I have encountered in a case somewhat similar where the grandfather was a moral imbecile, and the neurosis latent in the second, appeared intensified in two imbecile children of the third generation.

The following is not only an example of reversional heredity, but shows the close relations existing between two extremes of abnormality—genius and imbecility. A boy, a pronounced type of moral imbecility, is the great-grandson of a mental defective; the grandfather was a man of brilliant talent, an actor of international reputation; the father a man of ordinary ability.

An exhaustive research into the influences of heredity has been made by Oscar G. McCulloch, of Indianapolis, Indiana, in his study of the "Tribe of Ishmael." Records, the author claims, are scant up to the fourth generation, although there is reasonable evidence of "transmission" from the old convict stock which England threw into this country in the seventeenth century. However, from that generation and the marriage of a diseased man—John Ishmael—with a half-breed woman, the narration of facts begins. There is one

continuous history, covering a period of 48 years, touching almost every known crime, filling over 7,000 pages, tracing through 30 families out of a possible 250, no less than 5,000 degenerates of all sorts and kinds interwoven and reduplicated by illicit, consanguinous and incestuous connection.

The remarkable history of "The Jukes" compiled by Richard Dugdale, shows the gathering forces of varied neuroses when fostered by heredity and environment through more than a hundred years. Here 1,200 persons, the descendants of five degenerate sisters, repeat in successive generations the tale of disease, insanity, idiocy and crime, reversion to original type or its escape through early death.

In these we have surely found evidence in support of the theory advanced, that the transmission of imbecility is at once the most insidious and the most aggressive of degenerative forces; attacking alike the physical, mental and moral nature, enfeebling the judgment and will, while exaggerating the sexual impulses and the perpetuation of an evil growth, a growth too often parasitic; ready to unite with any neurosis it may encounter, and from its very sluggishness and inertia refusing to be shaken off; lying latent it may be, but sure to reappear, as Haller recounts, through a century to the fourth and fifth generation.

It is this permeating, penetrating, disintegrating power that to my mind places idiocy as a cause distinct from insanity; nor do I see why so many in pursuing the study of etiology class them together. One is mental defect, and the other mental disease; and although closely approximating in the peculiar phases of excitable idiocy and dementia, nevertheless they are distinctly different in both general states and general effects, proofs of which are found in the enfeebled constitution and early death period of the imbecile, as contracted with the average death record and longevity of the insane.

Phthisis appears prominently as a cause, second in the English table—674 or 28.31 per cent., and third—231 or 7.57 per cent. in the American, and its importance is confirmed by other authorities.

Langdon Down finds in his cases a marked history of phthisis in 25 per cent. of the fathers and in 20 per cent. of the mothers.

Wallington Grabham specially examined 249 cases, and in 55, or

22 per cent. there was a history of phthisis in the parents or near relatives.

Kerlin gives consumption as a possible factor in 56 per cent. of the families of the cases he examined.

Carson found the father consumptive in 4, and the mother in 11 cases out of 1,000.

Rogers does not give phthisis as an actual cause, but he finds it occurring in 49 families—9.8 per cent.

Piper found phthisis in parents or near relatives in 23 per cent.

The immediate effect of phthisis upon the strongest constitution is a lowering of tone and a lessening of all the physical forces; but in enfeebled constitutions it coöperates readily with any neuroses patent or latent, in the work of disintegration and tearing down of tissue, nerve and fibre, inducing an enfeebled condition utterly unsuited to healthful procreation. It is this general poverty of the whole being which chiefly characterizes the victims of a phthisical heredity, and which is more to be dreaded than the inheritance of the actual disease, in so much as such a condition is favorable to the development of idiocy either congenital or accidental.

Here we arrive at a common point of departure in our three primary causes—abnormal condition of mothers during gestation, heredity of imbecility, and heredity of phthisis—*i. e.*, that the influence of each and all tends to a complete physical degeneracy in which mental degeneracy finds logically its natural abode. Thus in apparent divergence do our tables show actual convergence in their estimate of the primary causes inducing idiocy; a view confirmed in the results of the researches of the various authorities cited, made on different lines.

Insanity reproducing itself, is a fact as unquestioned as that of its frequency as a contributing cause to many forms of degeneration. As a sole agent Koch considers it less active than imbecility, finding in his studies 16 per cent. of the former as contrasted with 24 per cent. of the latter, and my researches confirm his opinion, showing insanity a predominating cause in 216 cases, or only 7.08 per cent.

Associated with other neuroses, more especially idiocy, phthisis or epilepsy, it lends a psychologic force almost certain to develop mental defect. Beach and Shuttleworth find this grouping in 392 or

16.47 per cent. of their cases, and Carson in a study of 1,000 cases enumerated this factor 8 times in just such association producing 132 imbeciles.

Rogers finds 8 in 156 cases, or 5.12 per cent. The Connecticut Commission finds 14 in 164 cases, or 8.53 per cent., and Howe finds 261 in 574 cases, or 45.47 per cent. These approximate closer to the American than to the English table. Ludvig Dahl in his researches arrives at very different conclusions, for out of 169 idiots he finds 84 with insane relatives giving a collateral heredity of insanity, or almost 50 per cent.; whereas of 151 who had become insane only 58 or 38.41 per cent. showed similar heredity.

Kerlin found 10 per cent. with an insane heredity, and Down finds a history of heredity of insanity in 16 per cent. on the father's side and 15 per cent. on the mother's.

In my study through seven generations of a family numbering 173 individuals I have traced 25 pronounced neurotics, 9 insane, 3 imbecile, 3 epileptic and 10 still-born children; in all 50 abnormal descendants of one insane man.

A low-grade imbecile girl is the only child of insane parents who, from over-wrought superstitious belief in signs and omens, became subject to delusions of witchcraft.

Intemperance, of which the English table gives 390 or 16.38 per cent. and the American 136 or 4.46 per cent., while a recognized contributing factor, is in my opinion greatly exaggerated above others with which it is not infrequently found associated, nor do statistics verify the deductions made regarding its potency as a sole agent in the production of idiocy. The diametrically opposite views entertained by Down and Ireland are each so well sustained by examples as to make a comparison most interesting. Langdon Down says: "I feel quite sure that drunkenness must be placed among the factors in the production of idiocy. . . . In cases where the fathers were never *very* drunk yet never perfectly sober . . . the chronic alcoholism had produced a condition of mental hebetude from the slow poisoning to which they were subjected. Some of the cases are the result of slow deterioration of the father's mental and physical powers, others are the result of procreation having taken place during a debauch," and he adds as concurrent testimony: "Dr. Elam states

Case A.

Case B.

Case C.

IMBECILES — HIGH-GRADE.

Plate XVII.

in 'A Physician's Problem,' that on the removal of the spirit duty in Norway insanity increased 50 per cent. and congenital idiocy 150 per cent. Dr. Ruez has observed that idiocy was very common among the miners of Westphalia, who, living apart from their wives, only came home, and generally got drunk, on their holidays. Dr. Delasiauve says that in the village of Carême, whose riches were its vineyards, the inhabitants were forced to be a little more sober in consequence of ten years' vine disease. This he says had a sensible effect in diminishing the cases of idiocy."

Ireland is "inclined to believe that drunkenness, especially as a sole cause, is not so important a factor as writers like Dahl and Down would have us believe," and goes on to say: "I know it to be very common in some places where idiocy is scarcely met with. Those who assign so much to intoxication during conception ought to be able to show that a much larger proportion of idiots are born at certain times. In Scotland many of the lower classes get drunk at the New Year time—whole villages at once. We might then expect a larger proportion of idiot children to be born about the beginning of October, or nine months after the men came back from the herring fishing, when they generally have a carouse. This no one has noticed. As to the stress laid upon drunkenness at the time of conception Jules Voisin thinks that this cause is reinforced by the terror or repulsion of the mother. Since Dahl wrote his work on *De Sindssyge i Norge,* now nearly forty years ago, we have been assured that there has been a great diminution in drunkenness without any apparent decrease in the number of idiots. In my opinion idiocy is not the ordinary legacy which drunkards leave to their children . . . at the same time it is not denied that the toxic action of alcohol may in some instances be the direct cause of idiocy."

C. T. Wilbur of Illinois in 365 cases found only 8 due to intemperance of parents.

Howe, in an examination of 300 idiots, found 145, or nearly 50 per cent. of the parents habitual drunkards.

Carl Looft finds only 3.7 per cent. in 539 cases, and Kind 11 per cent. in 923 cases.

Rogers finds it singly in 11 cases, 7.05 per cent., out of 156, and concurrent in 29 of 344 cases, or 8.43 per cent. Grabham finds only

6 cases, and in 2 of these was a concurrence of insane heredity. Kerlin gives 38 per cent., and Carson finds 199 cases of intemperance occurring in one or both parents, and 23 cases in combination with mixed neuroses.

The Connecticut Commission in 235 cases finds 76 due to intemperance of parents; 46 showing one, and 30 both parents intemperate.

Demeaux in a study of 36 feeble-minded epileptics found that 5 were conceived in drunkenness.

Of 691 idiotic children examined in Gladbach, 61 or nearly 8.83 per cent. had intemperate parents—57 fathers, 2 mothers and 2 both.

I find 8 striking examples of this heredity among my patients: A boy, a pronounced moral imbecile, was conceived in a debauch.

A brother and sister, low-grade mutes, both possessing a rather remarkable talent for music—the brother especially exhibiting wonderful facility upon the piano; the father was an habitual drunkard. Three microcephalic idiots—boys—are the children of a dipsomaniac; the mother is a woman of average intelligence.

The others are two extreme types, an idiot who is also a mute; and an imbecile of high grade, a musical prodigy. Both parents of each of these are dipsomaniacs.

In the Mechanics' Institution at Manchester, England, are casts of the heads of seven microcephalic idiots. The father, a dipsomaniac, kept a public house and was habitually drunk. There is no history of the mother. Eight children were born; of these the first seven were the idiots referred to, all conceived in drunkenness. Later, loss of business depriving him of the means of drink, while the father perforce was sober, a child perfect in every way was born.

Marcé tells of a man twice married who drank to such excess as to exhibit symptoms bordering on insanity. His first wife bore sixteen children, fifteen of whom died of convulsions within a year after birth; one child, an epileptic, lived. The second wife had eight children of whom seven died of convulsions and the survivor was scrofulous.

Of epilepsy, Féré has said that no neuropathic disease is more directly transmitted, but a glance at statistics proves it certainly not so frequent as others, except in combination where it, like insanity, proves a powerful coadjutor in the production of mental defect.

I found but 3.02 per cent., and Rogers 1.2 per cent.

Down's 9 per cent.—3 per cent. of fathers and 6 per cent. of mothers—approximates closely Beach and Shuttleworth's 8.69 per cent. Carson finds it in combination in 124 cases giving 12.40 per cent., and affirms that in his experience he has never found it alone; and Gowers reports a history of insanity and epilepsy in one-third of 1,450 cases examined by him, or 33.33 per cent.

Kerlin's 16 per cent. was doubtless also in combination with other neuroses.

Eccheverria gives the largest report of transmission direct from parents; 39 per cent. of 572 epileptics, which goes far to confirm Féré's opinion.

I am inclined to regard epilepsy as much a phase as a contributing cause. The result of its association with any of the predominating hereditary causes referred to, even though indirect or collateral, is inevitable; the comparative infrequency of cases of direct transmission is doubtless due to the force of public opinion forbidding marriage or preventing cohabitation.

In speaking of epilepsy as a phase, the meaning I would convey is that epilepsy, whether associated with profound idiocy or extraordinary genius, is an abnormal condition in which constant mental deterioration goes on—a deterioration often unrecognized before death intervenes.

In the minor neuroses are included all those unstable conditions of nerve centers easily reacting upon any occasion either of excitement or of depression; exhibited often in severe nerve-storms, attacks of sudden uncontrolled grief or anger, yielding in fact to any emotional excitement. Evidenced at first in violent expressions of temper, ill-regulated grief or untimely mirth, this condition may either in the individual himself or in his immediate descendents, degenerate into habitual irritability or morbid sullenness. There may be chorea, hysteria, sick-headaches or cephalalgia, neuralgias, hypochondriasis, cerebral diseases, paralysis and various forms of neurotic diathesis which predispose to and, often intensified in transmission, produce mental defect.

Zola, in his long series of novels, Les Rougons-Macquart, ending with Dr. Pascal, gives a fine demonstration of the psychologic family

history of a Provençal family affected by hereditary neuroses nearly all of whose members show some inherited cerebral taint. This is the history of five generations of neurotics descended from one neurotic ancestor; ill-defined psychoses appear first, succeeded by definite psychoses, then by nerve scleroses, with the final extinction of the family except where there is an admixture of healthy blood.

Weakened power of resistance leads to a lowering of moral tone, as indicated by indulgence in petty vices, irresponsibility or consequent inability to attain success in life; such constitutions encountering and commingling with other neuroses, are almost sure to develop idiocy or imbecility in offspring.

Kerlin gives under this head 35 per cent. of parents nervously disordered and 6 per cent. paralyzed.

Rogers found 16 cases, or 3.2 per cent., the result of varied neuroses.

Beach and Shuttleworth find 11.30 per cent. and I, 79 or 2.58 per cent. due to the minor neuroses. In Canton Berne, Switzerland, 55 per cent. of idiocy was caused by the same.

Down says that 17 per cent. of his cases—4 per cent. of fathers and 13 per cent. of mothers—had a neurotic history.

Among my patients, 2 little microcephalic idiots are examples of this heredity; the father subject to intense sick-headache and the mother extremely nervous.

The history of the Farr family, which I have traced, shows the father fairly intelligent—the mother a neurotic, nervous, flighty and passionate. Of a family of 7 children, 3 sons and 1 daughter were normal, and 1 son and 2 daughters imbecile. The imbeciles fortunately did not marry. The 3 normal sons intermarried with good stock. The first had 1 imbecile daughter. The second son had 5 children, of whom 2 apparently were normal, 2 died in infancy and 1 daughter was a pronounced imbecile. The third son also had 5 children, presumably normal, of whom 2 died early. The normal daughter married a healthy man and had 1 imbecile daughter.

Herein we trace in 18 descendants of one neurotic: 6 imbeciles and 4 early deaths. It is interesting to note that the neurosis with one exception is repeated in the sex of the progenitor.

The consensus, which accepts heredity as a primary active agent

CASE D.

CASE E.

CASE F.

CASE G.

IMBECILES — HIGH-GRADE.

in the production of idiocy, fails to recognize consanguinity as a distinct and separate cause and, with but few exceptions, rejects the theory of ill in consanguineous marriages except when associated with hereditary taint.

The result of this doubling and intensifying of neuroses may have led to a confounding of cause and effect, and this, influenced by the insistence of certain medical writers, from time to time, has tended doubtless gradually to create the ban, ecclesiastical, civil and social, among peoples in these latter days. Yet there seems a concurrence in the opinion that "the way in which the subject has been discussed and the danger enforced has been too indiscriminate and illogical" (Tuke), and cannot be sustained by data, as many of the cases cited gave appalling results, without referring to the neurotic family history, which really returns them to their proper causation of heredity; as does Dr. Howe, who reports 44 idiots in 17 families, the parents being scrofulous and intemperate, as well as near of kin.

Ireland, Voisin, Bourneville, and Bertillin all agree that consanguineous marriages are not harmful unless there be distinct neurosis in the family, and a consensus becomes evident in reviewing the comparatively small percentages of results as given by various authorities, thus: Down, 7 per cent.; Kerlin, 7 per cent.; Grabham, 6 per cent.; Rogers, 3.6 per cent.; Brown, 3.5 per cent., and C. T. Wilbur, 0.3 per cent.

Beach and Shuttleworth find in the consideration of their 100 cases giving 4.20 per cent., that the bad effects are due rather to the "intensification of bad heredity common to both parents." In my own cases, numbering only 41 or 1.34 per cent., two were the results of incestuous connection—one of brother and sister, the other of father and daughter—and in the others there was an undoubted history of grave neuroses.

Both Down and Kerlin recognize that the cases studied by them were subject to other and prior influences, and Down admits further that in but 1 of 20 unselected cases that he presented, was consanguinity the single discernible factor, and adds: "I have endeavored to show that while the marriage of cousins insures a degenerate offspring where there is something morbid in the family history—where phthisis, scrofula, and especially the neuroses exist—I am by no

means sure that by a judicious selection of cousins the race might not be improved."

Arthur Mitchell found that of 711 idiots 98, or 13.78 per cent., were the offspring of blood relations: first cousins in 42 instances; second cousins in 35; third cousins in 21. In 84 cases no information could be obtained. In contrast to this he places the percentage of consanguineous marriages in Scotland at 1.3 per cent.

His views are in harmony with those of Withington, who regards morbid inheritance, rather than specific degenerative tendencies, the cause for the unfortunate conditions found in the children of those near of kin.

Alfred Huth, in his book, The Marriage of Near Kin, says that data on this subject is misleading and very defective, and that consanguinity has nothing to do with the question if there is no family taint; therefore that marriage between members of healthy families is devoid of harmful result.

George Darwin, after an exhaustive investigation states that in England, among the upper classes, about 4 per cent. of all marriages are between first cousins, in the rural districts, between 2 and 3 per cent., and in London, 1½ per cent.; 3 per cent. is probably the maximum, and of these between 3 and 4 per cent. of the children are idiots. The conclusion he arrives at is that, "the widely different habits of life of men and women in civilized nations, especially among the upper classes, tend to counterbalance any evil from marriage between healthy, closely related persons."

These views are sustained by the statistics of such marriages collected by M. Voisin in the commune of Batz.

"Among this population 46 marriages took place between cousins, viz., 5 between cousins-german, 31 between cousins of the next degree below, 10 between cousins of the next again. The issue of the 5 were: 23 children free from all constitutional disease, 2 only having died of casual disorders. The issue of the 31 were 120 children, none of whom labor under any constitutional infirmity, 24 having died of acute disorders. The issue of the 10 were 29 children, all born healthy, 3 having died of accidental diseases. Two females were sterile, the parents being related in the third degree. Insanity, idiocy, and deaf-mutism are unknown."

Batz is an isolated, ocean-washed peninsula of the Loire Inferieure, France, containing 3,300 inhabitants, who lead simple lives, and among whom crime and intemperance are unknown. For many generations they have intermarried, but no cases of degeneration have occurred, and the number of children born is above the average.

Voisin, in a further study of 1,077 children at the Bicêtre and Salpêtrière, reports that in not one case could he find consanguinity a cause of mental deficiency.

Mr. Amos Bonsall, the sole survivor of the Kane expedition, tells me that the Eskimos of North Greenland living within an area of 250 miles have intermarried for years, and yet imbecility and even congenital physical defect is unknown among them. Huth also reports a similar condition existing in the isolated communities of Pitcairn and Iceland, and the same is known to obtain among North American Indians and South Sea Islanders, where mental defect is the exception.

Howe's inquiry into the parentage of 359 idiots, finds in 17 families or 4.74 per cent., parents nearly related; in 1 of these there were 5 idiotic children; in 5 families 4 idiots each were born; in 3 families, 3 each; in 2 families, 2 each; and in 6 families, 1 each: in all 95 children of whom 44 were idiots, 12 scrofulous and puny, 1 deaf, 1 dwarf, 58 in low health or defective, and only 37 fairly healthy. He adds that one or both of the parents were either intemperate or scrofulous, and that there were also other predisposing causes.

Esquirol says that it is well-nigh impossible to estimate the number of French nobles who are defective as the result of the intermarriage of relatives; and a similar statement is made of the Catholic families of Scotland and England, as also of the Spanish branch of the house of Austria. It is, however, an undisputed fact that in all of these families, there was an heredity of imbecility, insanity and other neuroses.

Bemiss, who has perhaps made the most exhaustive study of this subject on record, reports 833 consanguineous marriages, giving the time of marriage, the occupation, the temperament, the health, habits, etc., of the parents, with the number of children, their defects, peculiarities, etc. The degree of relationship in these cases is given thus: 10 marriages between brother and sister or parent and child; 12 be-

tween uncle and niece or aunt and nephew; 61 between blood-relations, who were themselves the descendants of blood-relations; 27 between double first cousins; 600 between first cousins; 120 between second cousins; and 13 between third cousins.

The proportion reported deaf and dumb, blind, idiotic, scrofulous, and deformed is altogether larger than would be found among the children of families in the community, taking them indiscriminately.

The entire number of children springing from these 833 marriages was 3,942, of whom 1,134 were defectives: 145 deaf and dumb; 85 blind; 308 idiotic; 38 insane; 60 epileptic; 300 scrofulous; 98 deformed; and 883 died in infancy. These statistics appear appalling in view of what this intensified current may achieve in the carrying forward of defect, latent though it might be for generations. But interesting as they may be, these facts do not prove that consanguinity alone is accountable for all; as it cannot be doubted but that intemperance and immorality in some parents, and various inherited neuroses in the families, often intensified by incestuous connection, had a large share in the production of these defectives.

Incest, frequent among the Egyptians and Persians, and later among the Athenians and Spartans, was condemned by Socrates who spoke of such intercourse as prejudical to the healthy propagation of species.

The Mohammedans, although practicing polygamy, are shocked at such intermarriages. The Koran has this remarkable passage: "Ye are forbidden to marry your mothers, and your daughters, and your sisters and your aunts, both on the father's and on the mother's side; and your brother's daughters and your sister's daughters, and your foster sisters and your wives' mothers, and your daughters-in-law who are under tuition, and the wives of your sons; and ye are also forbidden to take to wife two sisters."

After thus considering data and argument on both sides, it becomes evident that a baneful heredity is the source of ill and not mere consanguinity, which is but heredity intensified.

Having reviewed the primary and more frequent hereditary causes of mental defect, we come to those not so general in character. Not only are these latter less frequent and less pronounced, but they may even be remotely traceable to, if not the direct result of, the former

Thus scrofula, cancer, goiter, and even the diseases of the cardio-vascular system, not appearing at all in the English table, present in the American a marked diminution in figures: Scrofula 36 cases—1.18 per cent.; cancer 25—.82 per cent.; goiter 2—.07 per cent., and diseases of the cardio-vascular system, 18—.59 per cent. Fewer cases and smaller percentages, show these either so rare or of such minor importance, as almost to be classed not so much as direct causes as secondary predispositions in heredity—certain physiologic conditions so to speak.

Scrofula, a very vague, unsatisfactory term, and not at all comprehensive, is a peculiar form of perverted nutrition or rather a malnutrition tending to retard development of the nerve centers, and is closely allied to phthisis; only the discrasia in this manifests itself by frequent eruptions, furuncles, ulcers, repeated attacks of coryza, otorrhœa, ophthalmia, glandular swellings, flabby flesh, inflamed eyelids, red, spongy gums, etc. Persons so affected are never very sick, and on the other hand never very well, and such heredity must be always wholly or in part defective. Inheritors of a scrofulous diathesis do not always develop genuine phthisis, but are subject to intermittent attacks of uremia, pneumonia, epilepsy and affections of the liver, and readily succumb to any acute disease. General statistics here coincide; for although Howe found 419 idiots of decided scrofulous condition, and according to Ireland two-thirds if not more of all idiots belong to that class, these are of course referable to phthisis. Rogers finds scrofula only once as an assigned cause, but associated with other neuroses in 46, or 9.2 per cent. of his cases.

Similarly does cancer evidenced, more generally by inward rather than by surface growth, in a general tearing down and enfeeblement of the whole constitution, predispose to mental degeneracy, being itself, however, as is also goiter, as much the result as the producer of malnutrition. Of these, statistics are fewer still. Down, who finds cancer in 3 per cent. of the fathers and 5 per cent. of the mothers, considers it a factor of minor importance; while of goiter he gives still less, 2 per cent. in the mothers, and Rogers, only .6 per cent.

Diseases of the cardio-vascular system exhibiting fatty infiltration or degeneration, or valvular diseases combined with kidney trouble, are not infrequently traceable to an heredity, however remote, of insanity, imbecility or alcoholism, and fall in the same category of malnutritive causes. The mixed neuroses here combining to establish an enfeebled circulatory system, degeneration both physical and mental becomes inevitable.

Syphilis as a factor in the etiology of idiocy holds a very unimportant place, and all authorities in finding it comparatively rare, unite in the opinion that owing to natural reticence, information under this head is not readily obtainable. Grabham gives no statistics, but says: "Syphilis in parents may account for a few cases as I have seen well-marked secondary syphilis in several of the children under my care." Ireland, who also gives no statistics, says: "I myself have met with but a few instances in which this malady appeared to have been the cause of idiocy." John Thompson (Edinburgh) has seen a few cases of mental defect accredited to syphilis, but he too gives no statistics. Langdon Down and Kerlin each find it in 2 per cent.; Shuttleworth and Beach in 1.17 per cent. The 6 cases giving .20 per cent. which I find, are however undoubtedly attributable to syphilis, the family histories being clear of neurotic taint.

A hydrocephalic idiot with prematurely aged face, fissured lips (rhagades), Hutchinson's teeth, rudimentary nose and osseous lesions, is one of a family of 5 children all suffering from congenital syphilis which the father, a literary man and prominent in church circles, had contracted in his early manhood. He told how, after the excitement of a wine-party, he had drifted into the "gates of hell"; how concealing his infection he had sought the aid of charlatans, and how finally, on the strength of an opinion that he was cured and need have no further anxiety, he had married; only to suffer untold agony in witnessing the mental and physical ruin of wife and children.

In another case the child is idiotic and blind. In another, the child is idiotic and frightful to look upon.

A semi-mute, paralyzed and epileptic, the ninth of ten conceptions; all save this one were either aborted at the seventh month, or were born "blue babies," and died soon after birth. The father, an imbecile, was literally eaten up with syphilis.

In another, a member of an aristocratic Hebrew family, the result of the father's early errors is evidenced in imbecility, epilepsy, pegged and notched teeth, keratitis, and phagedenic ulcerations.

A choreic, paralyzed girl bears upon her feeble mind, and yet more feeble body, the effects of the sins of a father who, brilliant and talented, the pride of an old family, had once been accounted an ornament to the bar and one of the most promising men of his state. A short time since, he died after a lingering illness, his body covered with disgusting sores and a gumma in his brain; his victims, this girl and a widow whose skin is scarred with the marks of syphilis.

Attempted abortion as a cause, greatly exaggerated, finds little or no verification in statistics, and even should idiocy follow it would be doubtless referable to those maternal conditions already cited. Certainly no woman so far below the brutes as such an act would indicate is in normal condition.

Howe reports 7 idiots whom he claims were the results of attempted abortion, I but 2, and Rogers 1. Beach and Shuttleworth find no evidence that they consider reliable; nor does Down, who adds: "It is said to be a cause but I am not able from my personal experience to confirm or negative the statement."

In the second division—the causes acting at birth—the two tables coincide more or less; with the difference that the Elwyn table does not include primogeniture, of which the English table records 492, or 20.67 per cent., modified by the statement that there are probably other contributing causes.

The various influences retarding or complicating delivery are of minor importance compared with either those just reviewed, as acting before birth, or the results of accidents or disease developing after birth, as our figures show.

Premature birth is 3.52 per cent. in the English table against 1.12 per cent. in the American, while Rogers finds it in only 0.2 per cent.

Difficult labor whether tedious or prolonged; protracted pressure due to narrow pelvis or rigidity of the perineum, etc., is found a cause more frequent by Beach and Shuttleworth who give 14.24 per cent., but of this I find only 18 cases, or .59 per cent. and Rogers not more than 5 cases, or 1 per cent. Down gives no statistics, but the

opinion that prolonged detention of the child in the maternal passages is an important factor.

Accidents during birth, such as death of the mother, injury to the child's head by precipitated birth, and hemorrhage from the umbilical cord, may be causes. Here also I find only .59 per cent., Beach and Shuttleworth 1.51 per cent., and Rogers in .2 per cent.

Instrumental delivery Grabham thinks is as a cause too frequently underestimated, yet in his experience it amounts only to 5.03 per cent.; Down's 9 per cent. is greater, while Beach and Shuttleworth's 3.31, Rogers' .2, and my .50 per cent., are all less.

Grabham feels that asphyxia in the newly-born child is an important cause of mental defect, but gives no statistics, while Down finds it a factor in 20 per cent. Shuttleworth gives it in 11.7 per cent. in his single experience, and Beach alone finds it in 12.96 per cent., while I have met with only 4 cases, giving but .13 per cent.

Ireland considers it not a common cause, but admits that his personal experience is not very extensive.

The agents of the two periods at and succeeding birth—prolonged suffering, asphyxia, accident, undue excitement, shock, or acute disease, etc., follow naturally the line of least resistance, and if aided rather than combated by the forces of heredity, readily accomplish in the offspring that result always threatening poorly nourished conditions.

The third division—causes acting after birth—in which data is more obtainable because more readily acknowledged than those of congenital origin, presents development of mental defect from either disease or accident after birth. Of these causes the English table finds eclampsia the most frequent; epilepsy and cerebral affections, infantile paralysis, injuries to the head, fright or shock and insolation, preceding the febrile illnesses.

The American table finds in this period, its chief causes in injuries to the head, and epilepsy in which eclampsia is included; the acute diseases, scarlatina, meningitis, accidents and tuberculosis preceding those of yet minor importance.

Injuries to the head approximate closely in the two tables, the percentages showing 6.17, and 6.26 per cent. The traumata, usually due to falls, blows, etc., may prove harmful in two ways; directly

Case H.

Case J.

Case I.

IMBECILES — HIGH-GRADE.

PLATE XIX.

at the time by concussion, or later by the occurrence of secondary lesions.

Down, who gives no statistics, is persuaded that although traumatism in some cases may prove harmful, yet it is not so common a cause as one is frequently led to believe; furthermore that a large number of the cases of mental defect attributed to suspected falls are really of congenital origin. Rogers finds traumatism in 10 cases or 2 per cent.

The record of convulsions of infancy—eclampsia—which the English table places first in its third period, giving 27.39 per cent. and epilepsy and cerebral affections 8.11 per cent., is modified by the statement of there being other contributing factors. I have always, and do here, class all infantile convulsions with epilepsy; and daily experience but tends to confirm the opinion, early reached, that so-called eclampsic convulsions are in reality true epilepsy, and that epilepsy developing without apparent cause either at puberty, in early manhood or womanhood, or at a more advanced period, may almost invariably be traced back to these; showing, to my mind, the epilepsy to be a recurrent attack, and epileptic seizures are always active agents of degeneration. I find epilepsy in 5.9 per cent.

Grabham finds convulsions in nearly 2 per cent. of his cases occurring soon after birth, or at first dentition, but he considers that in many cases there are other predisposing causes. Rogers gives 4.8 per cent. and Down, while he mentions epilepsy and convulsions as a cause, gives no statistics.

The 136 cases of acute disease in the American table, giving 4.46 per cent., include such diseases as pneumonia, pleurisy, malarial and ephemeral fevers. These being the only causes assigned, insufficient data required their acceptance, although I feel well assured that in the majority of cases a decided neurotic heredity and lack of resisting power was the true cause, and the disease only an exciting agent; the until the acute attack precipitated its development.
mental defect may even have been present, latent and unsuspected,

Beach and Shuttleworth grouping their 142 cases of febrile illnesses, 5.96 per cent., without giving separated percentages, find associated with the majority of these, symptoms of acute brain trouble, and with the remainder, general malnutrition apparently

causing cerebral atrophy. Rogers finds acute disease as a cause in 110 cases, or 22 per cent.

Scarlatina I find in 84 cases, or 2.75 per cent., and Rogers in 12, or 2.4 per cent.

Meningitis I find in 80 cases, or 2.62 per cent., and Rogers in 24, or 4.8 per cent. Down feels it is a very frequent cause and adds that children contract febrile illnesses, scarlatina, measles, diphtheria, etc., which are followed by inflammation of the ear, with extension to the membranes of the brain; or otitis may be set up by catarrh, the inflammatory action extending from the outer to the middle ear, or from the pharynx by means of the eustachian tube. After so severe an illness the child, who may previously have been normal, becomes an imbecile. According to Jastrowitz, inflammation of the brain occasionally occurs before birth—*in utero*.

Grabham states that many children born sound become defective from injuries, illness, or shocks, and places 12 per cent. of his cases in the period succeeding birth, as results of scarlatina, measles, whooping cough, typhoid fever, injuries to head and various other accidents.

Of my cases, 51, or 1.67 per cent. are attributed to various accidents—exclusive of injuries to the head—falls, blows, kicks, and shocks of various sorts. Roger's cases number 7, or 1.4 per cent. Beach and Shuttleworth find that fright or shock (mental) acted as a cause in 73 cases, or 3.06 per cent.

Many very young children of poor physique, even where there is no heredity of tuberculosis, are susceptible to its attack, tending to mental enfeeblement, degenerating into imbecility.

Tuberculosis is found as an attributed cause in 39, or 1.28 per cent. of my cases.

I find the gastro-intestinal diseases in 28, or .92 per cent., and Rogers in 6, or 1.2 per cent.

The abuse of drugs—opium, the bromides and the various so-called soothing syrups and other narcotics, given to infants, is said to be a fruitful cause of idiocy, but I trace it in only 25 cases, or .82 per cent., and Rogers in 7 cases, or 1.4 per cent. Down considers the abuse of opium a possible, but not a probable cause and one therefore greatly exaggerated.

Measles I find in 24, or .79 per cent. and Rogers in 6, or 1.2 per cent.

Abuse, neglect and exposure, as causes, are more rare than is generally believed. Although cited in 20 of my cases, or .66 per cent., these were usually associated with bad hygienic surroundings, insanity or intemperance of parents. Rogers reports 15 cases, or 3 per cent.

Whooping cough, I find in 19, or .62 per cent. and Rogers in 7, or 1.4 per cent.

Contrary to the opinion prevalent among the laity I consider masturbation rarely a direct cause of idiocy, finding it unassociated in only 18 cases, or .59 per cent.; an opinion in which Grabham concurs, he naming it a symptom rather than a cause. Rogers mentions it in only 1 case, or .2 per cent. Down believes that morbid sexual erethism, too often induced by nurses to quiet children, is a tangible cause of mental defect, leading eventually to grave moral delinquencies.

I find infantile paralysis in 17 cases, or .56 per cent.; Beach and Shuttleworth in 22 cases, or .92 per cent.; Down simply mentions it, and Rogers finds it in 3, or .6 per cent.

Typhoid fever I find in 16 cases, or .53 per cent., and Rogers in 6, or 1.2 per cent.

Of marasmus my 14 cases, giving .46 per cent., are the only ones cited.

Insolation shows an equal number of cases in both English and American tables—13—but the percentages differ somewhat, .54–.43.

Down, Beach and Shuttleworth find sunstroke principally in English children born in India; my own cases were those who as very young infants, were neglected and exposed to the direct rays of the sun.

I find various spinal diseases in 12 cases, or .39 per cent., and Rogers in 20 cases, or 4 per cent.

Diphtheria as a cause is given in 8, or .26 per cent. of my cases, and Rogers finds it in 1, or .02 per cent. of his.

La grippe, of which I have 3 cases, or .09 per cent., others do not mention.

Chorea in 2, or .07 per cent., I find, and Rogers in 2, or .4 per cent.

Hydrocephalus is attributed in 2 of my cases, or .07 per cent., and in 3 of Rogers, giving .6 per cent. Down considers it an actual cause but gives no statistics, nor does Grabham who states moreover that he finds it occurring usually in combination with other causes.

Tobacco, especially in the form of cigarettes, having, according to popular notion, an important influence, lacks verification. I have a record of 1 case only, giving .03 per cent., and in this there was a remote influence of congenital imbecility, forgotten by friends until the boy in his seventh year, began to smoke. I have no doubt that excessive indulgence in this or any vice causing over-stimulation and subsequent enervation, may be conducive to the arousing of latent neuroses, just as does over-pressure during the school period, of which the English table gives but 4 cases. In this sense both, without being actual, would certainly prove predisposing causes.

Similarly of other influences reported by various authorities as causes, I find no evidence in the cases I have studied; thus Beach and Shuttleworth attach but slight importance to illegitimacy, finding it in 42 cases, or 1.76 per cent. Arthur Mitchell says that in Scotland it is a not infrequent cause. I cannot but think, however, that in this also, as in that of twins and of primiparous children, the idiocy is due rather to anxieties and exalted emotional states of the mother.

Disparity in the age of parents as a cause, my investigations also fail to verify.

Before leaving the subject of etiology, it seems fitting to mention however briefly, "idiocy by deprivation." As has already been noted many causes may be resolved into the single one of malnutrition, and may be traced in mental as well as in physical conditions. The lack or loss of any one sense avenue will preclude or arrest the development more directly dependent upon that one avenue, and the mind suffer a certain starvation, so to speak, as in the case of the blind or the deaf-mute—mutism being an acknowledged example. True it is that other senses may be so aroused as to counterbalance or supply the loss of the one, but when there is lack of nerve force from weakness engendered by causes either congenital or accidental this fails, and idiocy by deprivation ensues. Such cases are to be en-

CASE A.

CASE B.

CASE C.

CASE D.

MORAL IMBECILES — LOW-GRADE.

countered from time to time in most institutions for the blind and deaf-mutes. In fact it was, as stated in a previous chapter, the effort to train these, that first demonstrated possibilities for all mental defectives, and the frequent applications of such for admission to training schools for mental defectives is a proof of increasing numbers in America. Of this I have a personal knowledge through many calls for consultation upon cases of this character.

Another phase of this, what might be termed "idiocy by isolation," those deprived wholly of human companionship, is more rare, there being but scattered instances from those earliest recorded of children nourished by beasts, to the notable one of Kaspar Hauser. This latter, of whom there seems to be a division of opinion as to his being an impostor, or a member of a noble family disposed of for reasons, was a young man found in 1828 wandering aimlessly near one of the gates of Nuremberg. The single sentence "I will be a trooper as my father was," which he was continually repeating, gave no clue to his identity yet seemed to be his limit of speech. Adopted by the city authorities and placed with Professor Daumer, he exhibited all the immaturity of a little child. Always referring to himself in the third person, he told, as his vocabulary increased, of having lived in a vaulted chamber, his only food bread and water, placed beside him while he slept, and of the occasional visits of a man who taught him the phrase he had repeated, and to write the name Kaspar Hauser, and who finally left him where he was found.

Under training he gave evidence of the possession of faculties which might have developed extraordinary abilities. His teacher speaks of his wonderful power of vision and of the rapid development of memory, especially regarding details. In fact he displayed just that eager anxiety for knowledge that a starved person would for food; and results of over-feeding and over-stimulation proved similarly disastrous, for his ideas accumulated with such rapidity as to produce a condition of collapse interrupting his training. Earl Stanhope became interested in him as the unfortunate son of some noble house, but later convinced that he was an impostor withdrew his protection.

His death was as mysterious as his life. In the winter of 1833 he was stabbed in the park at Anspach, where he said he had met a man

by appointment; but the wound, from the effect of which he died within a few days, was thought by some to be self-inflicted. The views of those directly charged with his education seem confirmed in the autopsy, *i. e.*, "that the mental development was not hindered by the deficient growth of the brain, but the brain was retarded in its development by the absence of all mental activity and excitement."

In striking contrast, are those exceptional cases of isolation through deprivation where mental development early begun and persistently pursued is achieved through the single avenue of the sense of touch, the most remarkable being Laura Bridgman and Helen Kellar, both pupils of the Perkin's Institute for the Blind, Boston, Massachusetts.

Laura Bridgman, the victim of scarlet fever when only two years old, lost sight and hearing completely, both taste and smell being also greatly impaired. Dr. Howe gives a graphic account of continuous training from her sixth to her twentieth year, enabling her to enjoy simple manual and household occupations, as well as correspondence with associates and friends, pursuing a useful, contented existence to quite an advanced age.

Helen Kellar, deprived at 18 months, also by fever, of sight and hearing, was the subject of solicitous care up to her seventh year, when her technical training began. She displayed the same delight in the acquisition of knowledge as had Kaspar Hauser, but pursued under more healthful environment with happier results.

The sign language of the deaf and dumb, was her first means of intercourse with the outer world. Later developing a wonderful talent for languages, the Braille system for the blind became an open sesame to the literature of many tongues, French, German, Latin, and Greek in turn yielding their treasures to her eager search, while oral speech, finally achieved, freed her in large measure from the isolation so graphically depicted in her autobiography. Taking with honors the Harvard preliminary examination at the early age of 19, she entered Radcliffe College in 1899.

The various data with which we have been occupied have been gathered from the records of no less than 15,745 cases, the results of years of study and research of men engaged in the work. In review-

ing, comparing, and summing up, a consensus becomes evident regarding the production by each or any of the causes cited of a malnutritive condition tending so to prevent, to arrest, or to retard development, physical, mental, or moral, as to result in idiocy or imbecility. By all, the hereditary causes, whether acting singly or in combination, are found to be most pronounced and these again are distinctly accentuated in the condition of mothers during gestation, and in the heredities of imbecility and of phthisis. Furthermore the influence of some congenital cause is frequently traceable in many of the accidental and developmental causes attributed.

Heredity is herein proven law, as inexorable in the descending as it is beneficent in the ascending scale; heredity—whether it be direct from parent to child, collateral as from other relatives, or reversional reappearing ever and anon through generations—which none may escape.

Again, a knowledge of causation and the assurance that many pathways lead to one condition of ill, idiocy—a condition which may be doubled and quadrupled through inheritance—should surely have its influence in inducing the adoption of means of prevention, wiser and more humane than those practised by older nations to preserve the integrity of society. Not by destroying the life of the weakling but by refusing to allow him to perpetuate a maimed existence; next by a simplification of all life, be it in the pursuit of wealth or learning, of occupation or amusement—a conservation in lieu of a dissipation of energy; then, after this elimination of harmful influences, such selection in mating, as shall insure only the survival of the fittest.

CHAPTER V.

DIAGNOSIS. PROGNOSIS. DEATH PERIODS.

DIAGNOSIS.

BEFORE entering upon the close discrimination which the diagnosing of the different grades of mental defect demands, it may be well to mention briefly some general indications noticeable in the periods of infancy, early childhood and youth; an early recognition of which might retard the degeneration that ignorance would precipitate, and lead to the seeking of specialized treatment and training in time to secure the best results.

The child who enters life through the portals of undue suffering, or who comes freighted with a pernicious heredity, will perhaps be found either extremely quiet and apathetic, or fretful and excitable; the eyes staring and vacant or rolling aimlessly may see without looking, or as in cases of photophobia be nervously hidden from view. The child is slow in learning to sit, to hold up its head, to use its hands. He is backward in noticing objects, in responding to caresses, and the mother, to him, is often no more than any other nurse; or he may be restless, nervous, irritable, crying and refusing to be pacified. Similar nervous signs may be noticed in slumber, which is either prolonged beyond the usual healthful period, or is fitful and broken, while there may be spasmodic or choreic movements of features and limbs and almost always incontinence of urine.

Slavering is common, due to the hyperemic conditions of the salivary glands, the want of muscular power in the lower lip or the prognathous form of the jaw and its inadequate size. Such babies do not take hold of either breast or bottle, so that feeding is often extremely difficult; digestion and assimilation is therefore imperfect, and frequent emesis, excessive diarrhea or extreme constipation, the natural result.

The hearing imperfect, speech is delayed often beyond the seventh year and articulation is apt to be defective. Lack of coördination

Case E.

Case H.

MORAL IMBECILES — LOW-GRADE.

PLATE XXI.

and of reflex muscular movement is seen in the halting, slouching gait. There may be quietude amounting sometimes to sullenness and indifference, or aversion to companionship and a general inertia unnatural to normal childhood; or excessive nervous flightiness and a disposition to wander aimlessly from one thing to another, associated with meaningless chatter and silly laughter. Both are indications of the abnormal ego, or the secret of the first may later prove to be a tendency to erethism—a tendency naturally increasing as childhood merges into adolescence. Early childhood may develop a backwardness, or a precocity equally abnormal which either neglect or over-stimulation in overcrowded classes will tend to increase. The child needs, therefore, to be carefully studied, noting the influences both of its heredity and of its environment, that much may be and of its environment? How much may be averted by not forcing averted by not forcing mere backwardness into permanent defect. Peculiarities that may be noted are: Cranial deviations from the normal—asymmetric, flattened or seemingly pressed out of shape; the head abnormally small—microcephalic, or abnormally large—hydrocephalic. The ears deformed, enlarged, twisted or rudimentary; the lobules frequently defective, adherent or absent; pinnæ and helices faulty; tubercles of Darwin often present; the ear may be implanted further back than normal. The nose rudimentary, enlarged, flattened or the alæ very wide. The mouth large and coarse, often in the lower grades open and drooling (sialorrhea); the lips either thick, negroid, frequently sore at the corners, or thin, immobile and inexpressive; the palate misshapen, narrow and vaulted like an inverted V; the gums swollen and spongy; the tongue pointed and fissured, or thickened and rough; the teeth decayed, and mastication being imperfect, the foul breath is intensified by poor digestion, merycism often occurring. The hand is altogether powerless or prehension is feeble; the fingers are thick and clubbed, the nails brittle, rough, or corrugated. The organs of sight and hearing may be perfect and yet useless—that is, the child may be able to see but not to look—to hear but not to listen; impressions upon the optic and auditory nerves are transmitted to the sensorium, but no idea is excited. The skin shows signs of degeneration, it may be coarse and flabby, the secretions being of a peculiar pungent odor; there

is proneness to eczema, rupia and other cutaneous diseases, the vegetable and animal parasites finding here congenial soil. The bones are usually brittle. There is commonly a phenomenal memory in every grade above the idiot; a memory for dates and extraordinary events, but no practical or residual memory for every-day occurrences.

In considering physical characteristics of mental defectives, the various ethnological types are easily recognizable: the dark skin, curled hair, and thick negroid lips of the Ethiopian; the prominent cheek bones, and deep-set eyes of the American Indian; and the tawny skin, coarse hair and peculiar Chinese cast of countenance of the Mongolian. The cretin who is sometimes confounded with this last named may be distinguished by the short squat figure and pendulous abdomen, wide mouth, flat nose, etc.

In both idiocy and imbecility, the sexual desires are exaggerated in the various grades in proportion to the predominant power of the mere animal over the psychic forces. In all grades, the organs of reproduction are generally fully developed, except that in the female the ovaries, not infrequently, are small. The penis is almost invariably unusually large, and in the majority of cases there is a very long prepuce. Boys should be examined in early infancy and circumcision performed from motives of cleanliness as well as a safeguard against the formation of bad habits.

The idiot commonly dwarfed and under-sized, exhibits those signs of physical weakness which at once betray mental degeneration. Mutism or deafness, where the cause is proven not local, indicates plainly a cerebral lesion or deficiency; so also insensitiveness to touch, inhibition to pain, a lack of muscular coördination impeding or preventing locomotion, unclean habits, vacant expression, and drooling mouth, are all manifest signs of idiocy, profound or superficial.

The profound idiot, apathetic, can give no expression to his wants by either speech or motion; he lies simply a breathing mass of helplessness. The excitable is distinguished from him only by the bleating cry and almost constant imperative movements which seem his one gratification—the rolling of the head on its axis, the swaying of the body to and fro, and the rhythmic movements of fin-

gers before the eyes. Both at any age whatsoever are more helpless than the ordinary normal infant and have not even an intelligent animal existence.

With the superficial idiot, whether apathetic or excitable, is found a certain degree of reflex muscular action, but poor coördination. Speech and locomotion are possible but always imperfect and halting. Mutism is the rule with apathetics of this type who with dribbling saliva will blow bubbles from their lips and make known their wants by signs and inarticulate cries. The gait is the uncertain and tottering step of infancy, or not infrequently, the limbs are partially or wholly paralyzed and the extremities cold and livid, owing to poor circulation. The excitable idiot of this class is a very imp of mischief with violent temper, wilful and irritable under restraint. Restless, always in motion, curious to a degree, testing everything with finger and tongue, he will lick furniture, door-knobs, etc., and even swallow stones, rags, sticks, and garbage of every description. Speech delayed, is confined to monosyllables, short phrases and broken sentences, supplemented by gestures or harsh animal cries. The gait is an unsteady shuffle, with dragging footstep and body bending forward, especially marked where there is a history of meningitis; or excessive excitation of temperament is often associated with a peculiar tip-toe step and automatic movements of head, hands and body.

The idio-imbecile, hardly a step in advance of the idiot, stands as his name denotes, midway between idiot and imbecile, sharing the physical characteristics and habits of the former, with something of the limited mental capacity of the lowest grade of the latter. Conditions however approximate, change, and merge so imperceptibly, that the experienced eye alone can recognize and place him. The dragging footstep and lurching gait of the idiot is accentuated rather than diminished in the awkward clumsy using of added muscular power which is yet incoördinated. The skin is coarse, peeling in large flakes, and poor circulation induces obstinate ulcers. There is added speech power much dissipated in senseless chatter and unmeaning laughter, while limited vocabulary still imposes the use of signs. There is a kind of grotesque travesty of humanity in this type; indeed it is only through imitation—a certain apishness

—that they are brought to render an automatic, rather than an intelligent service in the humblest offices of household or nursery. They are apt to be irritable, excessive silliness changing suddenly to temper quite as unreasonable.

Very near akin to him is the imbecile of low-grade. The stigmata are marked, and his speech always betrays him. There may be a redundancy of words—often a perpetual chatter—but always with defective articulation. What mothers are apt to hope is mere backwardness soon proves utter incapacity; unable ever to learn to read or write, or to accomplish more than the simplest and most ordinary occupations of life, "this brother to the ox," will never be more than a hewer of wood and drawer of water.

The imbecile of middle-grade in the ascending scale of mental defect is the first to approximate in the slightest degree the normal, and to evince an intelligence more human and less merely animal. The temperament compared with that of the low and high-grades, is equable, though leaning always towards suggestion; and this susceptibility to influence is perceptible also in the general bearing which partakes of the character of environment and association. Defects of vision and of hearing are frequent, and asymmetries and left-handedness are common. This is the *dullard* of the schools, with power of attention feeble, and of concentration—except under strong incentive—*nil*. Easily fatigued and confused, abstract and artificial signs hold his attention for short periods only. Independent study is for him, therefore, impossible and he is absolutely unable to advance further than the simplest primary work with books. Yet he is easily interested in conversation, in object lessons and nature studies, and in industrial and manual work his energies can be enlisted in many directions.

The high-grade imbecile may be one of those known as odd, peculiar and erratic. Without revealing actual definite stigmata, the whole physique may so lend itself to or be warped by mental idiosyncrasies, as to give a general impression to the casual observer of something different from the ordinary. Such often are the *idiots savants* developing talent in one direction or dominated by one idea, showing a mental asymmetry or one-sidedness. Again he may be physically normal, and, to all appearances, mentally also,

but there is perhaps a history of unusual precocity in infancy and early childhood. He has been the wide-awake baby, doing and saying remarkable things or later the mathematical prodigy of the class; he has a phenomenal memory for dates and numbers with but little recollection of daily events. He collects with avidity isolated facts which he can neither classify nor apply. The opposite of the imbecile of middle-grade, books and abstract studies are devoured, but not assimilated serve only to produce a mental indigestion. Without the healthful reaction, which his more fortunate brother has found in manual training, he turns out a ne'er-do-well, crowded out or pushed to the wall in the struggle of life. These however are extremes; the average imbecile of this grade shows but slight deviation from the normal; is in fact hardly to be distinguished from the backward child, with whom he may or may not keep pace in the school curriculum, up to the point where, his mental limit being reached, there is for him no further advance.

In the moral imbecile the degeneration of the psychic forces is the peculiar and distinctive feature, the perversion or the complete absence of the moral sense being revealed according to the character of the grade in which it appears. In the low-grade we find the cruel or bestial type—a sensual delighting in evil propensities. In the middle-grade, the absence of altruism and constant infringement of the rights of others appears, simply from the love of mischief or the excitement of accomplishment. In the high-grade, there is a refinement of evil; the mental powers subordinated wholly to a perverted moral sense, exhibit often a craftiness and skill truly satanic, while the not infrequent association of great physical beauty and bodily vigor together with the entire absence of physical stigmata, renders the recognition of this type except by experts impossible; they would literally deceive, often, the very elect.

The backward or feebly-gifted child who can never keep up with his fellows, who is dreamy, unsocial, stolid often to stupidity, or who, nervous and excitable, wanders from one thing to another until some congenial occupation attracts and chains attention, appears more abnormal than do many imbeciles of high grade. So close are the lines in fact, that a diagnosis is often extremely difficult and even the alienist must allow time and treatment to work out for him the

problem. Due often to the same causes, congenital or accidental, general characteristics and habits may be identical with those of the high-grade imbecile, with the difference that the trouble may not be so deep-seated. The feebleness may be diffused without being concentrated or localized, the whole physical constitution being so decidedly below tone as to hinder and even over-power for the time mental activities, without necessarily causing cerebral lesion or deficiency, which however, accident or undue pressure might at any time precipitate.

Prognosis.

The mistaken idea of seeking a cure for mental defect doubtless has its root in a misapprehension of terms and in confounding idiocy with insanity. In the latter there may be found cure as for any other disease; but idiocy is not disease, it is defect, and one might as reasonably talk of restoring limbs to one born without them as of curing a defective brain. To replace what has never been placed is impossible. No, there is no cure, nevertheless much may be accomplished in the way of amelioration and improvement. In the awaking of dormant faculties, and in the development and fostering of latent powers, deterioration may be arrested and retrogression prevented. Thus the idiot, unless of the extreme type of helpless infancy, may be brought to acquire cleanly habits, and to practice such offices of self-help as to materially lessen the burden of his care, while the idio-imbecile may be taught all this, and further to aid in the care of the absolutely helpless. The low-grade imbecile may be guided in the simple occupations of farm or household, which with his knitting and weaving may contribute to his maintenance. The middle-grade, a step further, gains a certain proficiency in ordinary hand-crafts.

The high-grade imbecile, who is almost normal, while closely approximating the backward or feeble-gifted, yet differs in that he suffers from absolute defect, which may, in a measure, be supplemented by strengthening those things that remain to him, but which can never be wholly supplied or restored. His defect is not only nited mental capacity, but the psychic forces are wanting, feeble, acking in quality, just as we have noted are the physical powers e idiot. Judgment and will, power of discrimination, and even

a certain amount of discretion there may be; but even when strengthened and built up, at the best these are only such as a well grown boy or girl will exhibit; vacillation, indolence, or an acute susceptibility to suggestion, may be at any time his undoing for, unstable as water, he will not excel unless sustained and protected by a will stronger than his own. A child the feeble-minded must ever be by comparison and in competition with normal people, but even a child may be brought to fill acceptably a life of service in his simple sphere, however limited; and in that, by constant exercise, feeble power may be raised to its maximum point and kept there possibly for some years, before the deterioration which inevitably comes at the close of the life period; this for defective children is generally mercifully brief.

The moral imbecile of any grade must find his only safety in congenial occupation in sequestration, under constant unremitting supervision.

The feebly-gifted or backward child has not crossed the border line, and by simply making haste slowly and avoiding risk of overstimulation may finally reach the goal open to all normal minds, though by a more circuitous route. He is not a mental defective, but a mental invalid, so to speak, possessed of all his powers; and has the same chance of attaining mental vigor that any sickly child has of being brought to full health through proper treatment.

Death Periods.

The frequent inquiry made as to the probable life limit of mental defectives, has induced me to make a careful study of death periods and causes in some 625 cases. The result as presented in the accompanying table shows the largest number of deaths occurring between the tenth and twentieth years; but comparatively few pass the twenty-fifth year, and exceptional cases appear from thirty to forty years.

Causes of Death.	Number.			Age.																	
				0–5		5–10		10–15		15–20		20–25		25–30		30–35		35–40		40–	
	M	F	Total.	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Phthisis	83	38	121			5	2	17	7	26	15	19	10	13	4	1		2			
Epilepsy	69	33	102			12	2	14	10	21	8	15	9	3	2	1		2	2	1	
Meningitis	25	17	42	2	2	5	3	11	6	7	4				1						1
Diseases of the nervous system[1]	45	32	77	1		4	2	9	12	19	7	8	5	2	1		3	1	1	1	1
Diseases of the heart[2]	21	14	35			4		7	5	6	3	2	2		2		2	2			
Diseases of the kidneys[3]	4	2	6					2	1	1	1							1			
Pneumonia	60	29	89			7	1	19	9	11	15	10	2	8		2	1	1		2	1
Acute infectious diseases[4]	26	18	44			6	6	12	4	4	3	4	4		1						
Diseases of the digestive system[5]	65	44	109	4	3	7	6	13	13	23	5	10	8	3	4	2	1	3	3		1
	398	227	625	7	5	50	22	104	67	118	61	68	40	29	15	6	7	12	6	4	4
				12		72		171		179		108		44		13		18		8	

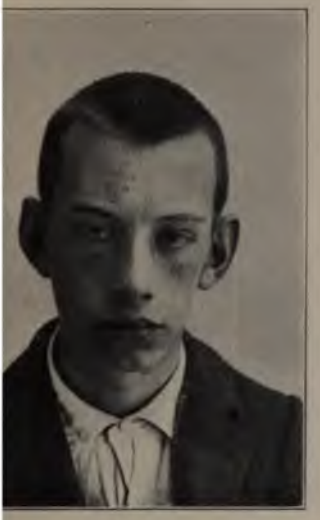
[1] Apoplexy, paralysis, embolism, thrombosis, progressive muscular atrophy, etc.

[2] Endocarditis, pericarditis, etc.

[3] Addison's disease, nephritis, etc.

[4] Typhoid fever, diphtheria, measles, scarlet fever, erysipelas, etc.

[5] Enteritis, peritonitis, intussusception, gastritis, gastric ulcer, etc.



CASE F.

CASE G.

MORAL IMBECILES — LOW-GRADE.

CHAPTER VI.

TRAINING AND TREATMENT.

TRAINING.

IN comparing the training of feeble minds with the training of normal, several points must be considered. In dealing with the lower grades who, as we have noted, neither see nor hear voluntarily and are therefore incapable of observation, many things must be persistently taught that normal children acquire or glean intuitively. The proper mastication of food, the use of the spoon, fork and knife, the dressing and care of the body, the standing and walking unsupported; indeed, from the very simplest matters of self-help up to the attainment of some regular employment, step by step, must there be daily persistent showing or leading until the limit of capacity be reached. Work in small classes insures best results, escaping monotony, and giving requisite emulation. The awakening of torpid or dulled sense perception must necessarily be through means sharply accentuated and frequently repeated. The lessons proceeding very gradually from simple to complex must be in no sense abstract, the subjective reproduction of the pupil following closely the objective illustration of the teacher. As the average period of receptivity extends only from the seventh to the sixteenth year, and as four times the period of normal practice is required to insure independent work, it is imperative that the instruction from the beginning be adapted to the child and to his peculiar status. It is most important, therefore, that the work be directed by an expert, for either delay or overpressure will defeat the aim and bring inevitable deterioration. The following outline is formulated and based upon data gathered from the experiments and experience of the first century of work with mental defectives.

OUTLINE OF PHYSIOLOGIC EDUCATION OF MENTAL DEFECTIVES.

For lower forms *improvement;* by means of:

(*a*) The testing of the various sense-organs, so that defects may be remedied by surgical or medical treatment.

(*b*) The gradual awakening of the senses by the presentation of objects that attract, of exercises that stimulate the attention and encourage imitation; achieving limited capacity, self-help, and cleanly living.

(*c*) The exercise of the awakened senses in simple occupations, preparing for menial employment under direction.

For higher grades *development:*

(*a*) Of the emotions, through exercise in acts moral and ethical; achieving habits.

(*b*) Of the body, through exercise in military, gymnastic, and athletic activities; the training of the hand in the industrial and manual arts, the chief agent in promoting mental activity.

(*c*) Of the mind, in power of prehension and apprehension, judgment and will alternately sustained and independent; achieving selfhood.

Aids.

Environment.	Amusement.
Association.	Discipline.

The training of the feeble-minded, a philanthropic movement directed first toward the idiot, soon found a limit in dealing with a subject not trainable and but slightly, if at all, improvable. Thence, diverging and broadening as idiocy became better understood and imbecility in its various phases more clearly recognized, it found its true province in strengthening and encouraging feeble intellects, arousing and stimulating indolent and weak wills, and in training and directing into healthful channels the abnormal energy of those destitute of the moral sense. How wide is this divergence can now readily be seen, as also how impractical it is to associate two classes of work that must be conducted on different lines, and which in reality are further apart than is the training of imbecile and of normal children.

For the Idiot, unimprovable, nothing is needed beyond the asylum, giving that care and attention found in every well-regulated nursery of delicate children, the *sine qua non* being regular hours, simple nourishing food, frequent baths, and tender mothering. As numbers can be cared for here more efficiently and with greater ease

than can one in the ordinary family, and as the child very often does not recognize the hand that ministers to his physical wants, the mother herself is soon forced to admit that the asylum is best, not only for the good of the child, but also for the welfare of the home.

As many of these unfortunates are paralyzed, blind, or lame, it is desirable that the dormitories, well ventilated, be on the same floor with the living rooms, and of easy access to bathrooms and playgrounds. Covered and carefully guarded porches should afford the much-needed fresh air and outdoor exercise in all weathers. These, with cheerful, sunny play-rooms, provided with simple toys and furnished with bright decorations varying with the season, will contribute the maximum of pleasure for this life of perpetual infancy. Low vitality, general poverty of the whole physical make-up, the prevalence of phthisis, epilepsy, and kindred diseases, require the daily inspection of a physician, while the comfort and well-being of the entire community is insured by a capable and sympathetic house-mother.

The character of attendants is of the first importance, as these are they who live with the children; it should combine that firmness, tenderness, and balance that constitutes an even temperament, capable of recognizing and meeting an occasion without loss of self-control. The duties include not only the care of the idiots, both unimprovable and improvable, but the training and direction of idio-imbeciles as aids; and this dealing with natures often wholly animal requires a certain refinement and dignity of character, at least an entire absence of coarseness, while a knowledge of the simpler manual arts, and, if possible, of drawing and of music, will do much to soften and brighten these darkened natures. As these qualities are valuable, as well as rare, the remuneration should be in proportion; certainly sufficient to insure permanency and to compensate for such isolation. A life of constant wear and tear demands also regular periods of rest, and the corps, therefore, should be sufficiently large to give relief hours daily, as well as occasional vacations.

Improvement.—For the Idiot, improvable, success, even to the limited degree possible, is best assured in congregate numbers; as for the charlatans, who profess to train a single pupil and in a few years send him out prepared to take a high-school or a college course, they not only deceive those from whom they may gather a

few thousands, but they impede the progress of the work by such misrepresentation. One of these averred to me that she had so educated a microcephalic idiot that he became, later, a professor in a university. That there was absolutely no truth in her statement, there can be no doubt; one cannot do the impossible. Relays of teachers of experience and versatility might, in time, through exertions almost superhuman, raise a superficial idiot for a brief period to the level of an idio-imbecile, but this could be attained only by the expenditure of much time and money, and by sapping the vitality of the teacher; and all this with an absolute certainty of eventual reversion to original type, so that, emphatically, it would not pay. No, "an infant crying in the night and with no language but a cry," with most imperfect speech, if any, an idiot must ever be; but an infant with cleanly habits, he may possibly be brought to be. He may be taught to say "papa" and "mama," to repeat his nurse's name, or perhaps that of a companion; to utter a few disconnected words, or at best a broken sentence, rarely of more than three words, never using the pronouns correctly; and thus, through long and persistent effort, he may be enabled to make known his wants, but this is all.

The axiom, proven in kindergarten and so often quoted of large families, that "children do much of the bringing up of one another," is true even for these morsels of humanity. Here, efforts to make sense impressions, to arouse attention, or to excite to free play are more successful with a number than with one; then, too, children follow naturally a leader of their own kind, become less shy and more eager, are more ready to imitate one of their fellows; and imitation is a most important agent. In a series of sense-impressions, beginning with sight, one seeks to engage the wandering gaze or to attract the apathetic, with contrasts of color in combination with alternate motion and repose; such as by swinging balls of bright and neutral tints, alternating and well spaced, suspended from a bar, or by laying colored blocks on the table. After months or even years, the child may learn to match colors and blocks, to use peg-boards, to string beads, to lace cards, and even to help to dress a manikin. Nerveless fingers may be induced to clasp or grasp through the necessity of holding fast during swinging exercises or by digging

Case A.

Case C.

Case B.

MORAL IMBECILES—MIDDLE-GRADE.

PLATE XXIII.

in the sand. Hands thus strengthened may next be encouraged to hold a spoon or a cup, to lace a shoe, to tie and button clothing. Inertia may be overcome and some slight independence of movement gained by exercises in reaching for and running after balls, or animals made of rubber, celluloid, or wool. Bags filled with corn or beans and tossed over sticks or through a hole, or better into the mouth or eyes of a grotesque figure, will also tend to strengthen feeble muscles, which should be further toned up by daily baths, electricity, and massage. In this play, as in all training, does Froebel's motto hold—the teacher must "live with the children." The idiot never does any of these things voluntarily, nor does he play as do normal children; but, led through these or similar awakening exercises, he may attain to self-help in matters of cleanly living, and if, eventually, he learn to feed, wash, and dress himself, the effort at training has been a success, rendering the child in that respect independent, and so far simplifying his care at home; or with congregate numbers in asylums, reducing somewhat the number of attendants and consequent expense, and greatly relieving the burden upon those in charge.

The Idio-Imbecile, but one remove from his weaker brother, to whose wants he may be trained to minister, finds here his fitting place, and the domestic service of these asylums may be largely drawn from this class, as also from that of the low-grade imbecile. Working as an aid, never alone, always under direction, he finds in a monotonous round of the simplest daily avocations his life happiness, his only safety from lapsing into idiocy, and therefore his true home.

With little or no added power of speech, he is yet capable to a greater degree than is the idiot, of sense awakening. As the power of attention and selection grows, the numberless simple occupations of the kindergarten may be given to build up habit and to insure power by means of reproduction; such as the laying of paper strips and disks, making designs or pictures, building with blocks, weaving with wooden slats, sewing cards, etc., each occupation merging into the other, leaving a little and adding a little, until whole color and number schemes be worked out, and sight and attention are arrested, and selection and enumeration, and hand and finger movements are

in a measure coördinated. The result is not only capacity for self-help, but for quite efficient service in the care of the helpless.

The relief to the home and the actual benefit to society in this housing and care of the idiot and idio-imbecile can never be fully estimated. It is reckoned, however, in a general way, that for every defective of this class sequestrated, the energies of two if not four normal persons are returned to society.

Development.—In the consideration and observation of trainable mental defectives—imbeciles—it is difficult for the uninitiated to understand that the term, high, middle or low, is not associated with promotion and advancement as in schools for normal children. On the contrary, it signifies the quality and status of the individual, his limitations, his possibilities, and consequently determines almost unfailingly his life-work, and indicates the training for it; not by any hard-and-fast lines, but by a general mapping out of means which experience has proved will best insure his development, because best suited to his needs. Every latitude is allowed, and as the comfort of both the teacher and the entire class depends upon each "going to his own place," there is easy and natural transference according to the necessity indicated by either progress or retrogression; but as the varied occupations in each grade give ample scope for the indulgence of individual proclivity in the means of development, it is found that the original diagnosis, based upon experience, rarely errs.

This diagnosis has noted the stigmata, the positive defects present or those that may be expected as revealed by inquiry into cause—congenital or accidental—the family history, atavistic tendencies, peculiarities, idiosyncrasies, the general health, desires, needs, habits, etc. From these data an opinion is derived which either assigns the child to custodial or asylum care, or deciding for him the possibility of general training, designates that grade in which he shall be trained. At this point preparative work begins, and as upon physical efficiency depends mental potentiality, just so closely allied must be treatment and training—the work of the physician not only preceding, but intimately associated with that of the teacher; the work of the teacher following closely and relying upon the indications given by the physician.

As the training is to be physiologic, every sense avenue is to be interrogated, tested, brought to the best working level and kept there. One may expect to encounter extreme nervous irritability, or stupor and dullness affecting all the senses, or else actual defect of one of the sense-organs demanding surgical or medical treatment. Either of the first two calls for untiring patience and originality on the part of the teacher in devising and adapting methods, together with the constant aid of the physician noting cause and effect, lest complications unlooked for arise. The correction of any one defect may often simplify an exaggerated ill. Apparent stupidity or inattention may prove to be due to deafness that has been unsuspected, and that disappears when some perhaps trifling cause is removed. So, also, defect of taste may be due to catarrh; or the removal of adenoid growths may aid imperfect speech and prepare the way for drilling in articulate sounds. Sullen obstinacy or indifference may be only the natural despondency arising from defective vision, and the services of the ophthalmologist open a new world to the child, and reveal him in a new light to his own world. I know one who changed from the morose to the lively in a very short space after seeing life through other spectacles; and his after-skill with the pencil, and love of detail in pastel was a delight to himself, to his teachers, and to his comrades; and this is only one of many similar cases that could be cited.

Inertia, that appears to resent movement, is not necessarily stubbornness or indolence but may be due to timidity, a feeling unexpressed but nevertheless intuitive, of inability from lack of muscular coördination and a sensitiveness in revealing consequent awkwardness. Given an incentive that interests, and that diverts and absorbs attention—such as the military and calisthenic drills, movement plays, or concerted action of numbers in blackboard drawing—shyness and morbidness disappear, and with growing confidence come the beginnings of self-poise, a good foundation for after-training. Again, the tactile sense may, to the inexperienced, seem unimportant; its absence however amounting often to entire hebetude to pain is a marked characteristic of the mental defective. When we contrast the obtuseness of touch noticeable in imbeciles with that sensitiveness that finds its highest expression in the arts,

and remember what an avenue it is to the deaf-mute—Péreire actually causing his pupils to hear through the skin—we are prepared to exclaim with Buffon: "How wonderfully it is proven how much the senses are alike at the bottom, and to what point they may supply one another," and to recognize the value of this agent in stimulating mental processes and the immense necessity for its awakening. In this, as in all the work of sense preparation, the kindergarten methods are invaluable, and Froebel, with his "Come let us live with our children," is even more the friend of the abnormal than of the normal child. All the measures previously described as suitable for the idiot are here elaborated and adapted to a higher order of intelligence, and should have practical illustration in the occupations that form the initial of manual training, associated with all the moral and ethical ideas of good fellowship in a community of labor; these should be further emphasized in the songs and games that, by the very power of rhythm, induce coördination of movement. Herein lies the strongest plea for early recognition and proper placing before the child is too large for the kindergarten, so that he may not be deprived of this preparation for development and training; for size must necessarily exclude from the games of childhood, although we do say that "with us age does not count." And just here is a seeming paradox; for the mental defective presents three ages at the one time: the natural or the actual age, which dates from birth; the psychologic, which is the retarded age; and the physiologic, which is generally advanced. For example, I have under my care a boy aged twenty-eight years; in stature and mental development he is a child of five; with the wrinkled visage, the habits, and the bodily enfeeblement of a man of sixty. The need for specialists to handle such complexity is, therefore, self-evident, as mistakes mean danger in many directions. The period of infancy with a defective child—if the case be congenital—extends not only through three, but often through seven years, so that the period when a normal child would be leaving the kindergarten, or perhaps a little later, the defective would be just ready to enter it. Experience has so well proved this, as to lead to a consensus among those engaged in the work, that training at an earlier period than the seventh year is not only undesirable, but likely to prove most disas-

CASE D.

CASE E.

CASE F.

CASE G.

MORAL IMBECILES — MIDDLE-GRADE.

trous. This prolonged infancy should be rather a chrysalis stage, in which the ill-nourished physical being is fed and strengthened by repose, and carefully shielded from all incitements to precociousness or any advance beyond the natural impulses that Froebel suggests in "*Mutter und Kinder,*" and that a wise mother comprehends intuitively; anything further may provoke an outbreak of insanity or a relapse into profound idiocy.

Just as in these cases the period of infancy is prolonged, so does the limit of receptivity come proportionately early, generally coincident with the close of the adolescent period and rarely extending beyond the sixteenth year.

Now, as it takes a mental defective twice or three times as long as it does a normal child to learn anything, success must depend upon environment and methods in order that, without undue strain or pressure, the most can be made of this limited period. Hence the importance of a correct diagnosis at the beginning and of the preparation that assigns the child almost unerringly to the grade that will prepare him for the one purpose in life possible to him, so that, without loss, each may go to his own place.

The motto of the schools, "We learn by doing; the working hand makes strong the working brain," shows manual training to be the basis of the scheme of development for all, but modified to suit the intelligence in each grade. Thus classified, various occupations are arranged and presented with the double purpose of securing all round development and of giving at the same time opportunity for choice according to individual bent, the child being permitted gradually to devote himself more exclusively to that in which he shows a tendency to excel, and to gain a certain automatic ease in what shall prove the initial of a life employment.

The faculty of speech, which we have noted as partially or altogether lacking in the idiot and idio-imbecile, is found in proportional degree, more or less imperfect, in all grades of imbecility. Due frequently to defect or disease of speech-centers, there may be other local causes that the physician, the surgeon, or the dentist can remove or ameliorate. Nevertheless, even with this assistance, there yet remains the force of habit which persistent daily practice under special training alone can counteract.

Mutism or semi-mutism may be due to a torpidity which is both mental and physical, accentuated sometimes in the region of the aural and nasal passages by defect or disease so slight as to be unsuspected or overlooked, as is too often the case. Children so affected either gain no impression from environment through ordinary means, or the sensation feebly received is so feebly transmitted as to fail in resultant concepts or ideas. Speech consequently is impossible; they cannot reproduce an idea that has never been produced, and impaired audition forbids the senseless chatter of mere repetition, observable in many as powerless as they to originate. To such children the games and songs of the kindergarten give a needed stimulus, not only providing a subject, but giving the aid of imitation and repetition; and that through an inspiring medium, for it is often easier to sing a word than to speak it. Then, too, the imitation of animal cries or of other familiar sounds brings in all the vowel, and many of the more difficult consonant sounds. Many children who, for the same reason, fail to catch combined or terminal consonants will need special practice in pronouncing *m*, *w*, *th*, *g*, etc. Here the phonetic exercises, associated with primary reading, are invaluable, and should precede, by several years, those of the ordinary spelling classes, which as being more abstract, tend to break up, and to dissociate rather than to coördinate sounds. The pupils should be encouraged to dictate words upon a given sound or combination of sounds. Emulation soon calls forth a dozen or more words which, repeated in concert, printed and written, gives not only vocal and writing practice, but affords opportunity for the detecting of individual defects in pupils who should then receive additional training in a special articulation class. The cause of the speech defect is sometimes, as with normal children, a careless habit in the use of the organs of speech due to lack of training, often to the execrable practice of persisting in "baby talk." Any of these faulty habits may be corrected by exercises suited to the needs of the pupil—exercises that, so to speak, loosen up the organs. To illustrate: *l*, and *r*, being difficult sounds, let the child begin with the syllable "la," "la," "la," repeated in rapid succession, and then continue through the vowel sounds. Next combine the *l*, with consonants: *dl*, *pl*, etc., taking later *r*, through

the same combinations until the "curled-over" position of the tongue becomes in a measure automatic.

Lisping is quite common, as is the substitution of *d* or *f* for *th*, giving "dis," for this, "fing," for thing. It is not commonly understood that, in addition to the general bracing-up of the whole physique through physical exercises; special movements of head, neck and shoulders, tending, as they do, to strengthen and invigorate, will materially assist both imperfect speech and dulled hearing. Weak muscles may cause either stiffness or flabbiness of the lips or tongue, and the child may seem powerless to relax or contract; here stimulus through the emotions is needed. One teacher found a whistle an excellent aid; another, a bit of candy pulled by a string from between the lips—the effort to hold on inducing power of contraction of the lips. So, also, the child may place his hand against the throat of the teacher in order to learn and imitate the action in sounding *g*; or feel the breath from the lips upon the hand in the explosive *ch* or *j*.

A useful practice drill is found in apt alliterations, such as "Around the rugged ruin the ragged rascal ran"; "The twister in twisting would twist him a twist"; "Shrewd Simon Short sewed shoes." The words "Separate," "February," "Academy," as necessitating distinctness in enunciating vowel and consonant sounds, have been found good test words in examining for speech defect.

Stammering, although not frequent among defectives is occasionally encountered, and may be corrected by early attention and persistent training. It is often accentuated by embarrassment and overhaste in speaking, a nervous dread producing the very result one seeks to escape.

Dr. Wyllie, to whose work Dr. Ireland first called my attention, considers stammering due to deranged innervation, causing loss of command of the laryngeal mechanism usually felt in the first syllable of words. The energy needed for enunciation flows in many directions, and the action of the tongue and that of the lips are not timed equally; that is, the energy may be produced irregularly, or at least not spontaneously, lack of coördination being the natural result, and this with highly nervous persons would be increased by embarrassment or by hypersensitiveness. Exercises in quiet speaking, talking

without effort, should alternate with the singing of words with distinctness. In this latter the organs are induced to maintain one position for a brief space precluding haste. The voice thus prolonged gains confidence, and the power of enunciation once made patent, continued and persistent practice finally overcomes or at least modifies defect.

The Low-Grade Imbecile, the first capable of advance from mere improvement to actual training, is a step in the ascending scale from the idio-imbecile, mainly in the faculty of articulate speech; but the very little added power of consecutive thought, however, is betrayed in his short, half-expressed sentences or in a parrot-like chatter. With halting walk, characteristic dragging foot-step, dulled sight and hearing, and insensitive touch; for him the chief, we might almost say the only, avenue of development is through the muscular sense. Like the idio-imbecile, he cannot comprehend artificial signs or symbols, and can never learn to read or write. Figures for him have no meaning, nor numbers beyond the very simplest counting acquired in the repetition of some simple task, such as knitting, netting, and the like. The excitation of interest in these, which will also give hand and arm power; the arousing of the sluggish, indolent will through the stimulus of the satisfaction of doing for some one; and the physical development by means of the various drills and occupations, are all that school can do for him. By means, however, of physical exercises that arouse and of occupations that interest, the arm, the hand, and the fingers may be enticed into movements that, if coördinated and persisted in, may in time produce a mental impression.

The ordinary household occupations, which include the lifting of weights, drawing, pulling, stretching, rubbing and climbing should alternate with the quieter occupations giving hand and finger movement, and thus form for him a distinct industrial training. The care of the school-room therefore, and of plants, and the polishing of floors and of windows, are as distinctly aids in the work as are the sewing and winding of strips for carpet-weaving, the folding, the knitting, the knotting and twisting of fiber, or straw braiding.

As soon as limited capacity for independent action is evidenced, from this grade may be drawn fairly responsible aids for farm or household service; or growing powers of observation, perception and reproduction may find satisfaction in the use of the more permanent textile materials, willow, rope or rattan, and thus as domestic servants or as weavers of carpets, baskets, hammocks or mats, these children go out from school to contribute their quota to the general economy.

As they develop two types, either extreme docility or perversity—the one, quiet, gentle, obedient, following any suggestion; the other, obstinate, indolent, often brutal and cruel—the necessity for constant guardianship is self-evident.

Some idea of the amount of labor that must be expended on this grade of defectives may be gained from the following: I find in our museum of educational work a little ball, which I am inclined to regard as the most valuable thing in the whole collection. The boy who made it was a low-grade imbecile; his hand against every man, he fancied every man's hand against him. Always under strict custody that he might harm neither himself nor others, he would vent his spleen in tearing his clothing. His teacher, a woman of rare patience and devotedness, sat beside him one day, tearing strips of old linen and laying them in order. "See, Willie, let us make some pretty strips and lay them so." His wonder grew apace at seeing her do what he had been reproved for doing. At once he responded, and a new bond of sympathy was established between them. She was playing his game—the only one, poor little lad, that he was capable of—and he joined in. "Now we will draw out the pretty threads and lay them in rows." For weeks the boy found quiet pastime in this occupation, and the violent nature grew quieter in proportion. One day the teacher said, "Let us tie these threads together and make a long string." It took him months and months to learn to tie those knots, but meanwhile his attendants were having "breathing space." "Now we will wind this into a pretty ball, and I will cover all you make for the boys to play with"; and a new occupation was added to his meager list. The next link in this chain of development was a lesson in knitting. Again, through months of patient teaching, it was at last accomplished, and the boy to the day of his death found

his life-happiness in knitting caps for the children instead of tearing both them and their clothing. In this case the teacher was wise enough to utilize the natural activities of the child and to divert evil propensities into healthful channels. Had she brought knitting and bright yarn or anything foreign to him first, it would, in truth, have been fitting new cloth to old garments, and the rent would have been widened; his obstinacy would have been aroused, and he would have continued to tear to the end of the chapter.

The Imbecile of Middle-Grade should receive that fuller presentation of work suited to fuller capacity. For him the working hand must still make strong the working brain, through means which his brother *dullard* is not yet equal to; some knowledge, too, of the three R's he is also capable of acquiring and of applying, and although to but a limited extent, that much he should have. Not only because the knowledge gained is of immediate practical use as an aid in other class work, but direct benefit of daily quiet occupation with books, papers and blackboards is incalculable to nervous, restless natures that for two thirds of the day are engaged in those manual and industrial employments in which they must find their chief means of development.

Reading, to which both spelling and writing are but subsidiary aids, is best acquired by the word-method based upon conversation. Attention is attracted and held by the presentation, if possible, of the object pictured in chart, and also sketched rapidly on the board by the teacher, while in easy conversation, short descriptive sentences are elicited from the children, each contributing his *story*, the teacher printing and writing these in corresponding columns at their dictation. Beginning then at the end of the sentence, teacher and pupils call words in concert until by alternate retreat and return the words in both columns have been repeatedly named and the *stories* read through in conversational tone from beginning to end. Similar *stories* are then looked up on the chart and differences noted, and after reading these in the same manner, the class—while the mental impression is still fresh—is dismissed to blackboards to reproduce the lesson in drawing, print and script, each child reading result aloud before returning to seat. Any effort

however crude—as it will be at first—will grow through encouragement and emulation.

To facilitate progress and to give requisite practice in forming letters there should be a daily drill of not less than twenty minutes. The children, going immediately upon entering the school-room to blackboards, gain a certain self-reliance by putting themselves to work and not depending always upon call. The class working silently filling blackboards a few times will first print several letters in columns; then erasing, will write the same, rapidly changing order of letters to vary arm and finger movement, thus:

a b c	b c a	c a b
a b c	b c a	c a b
a b c	b c a	c a b

On Friday the blackboards should show the work of the week in print, in script, and also in drawing, and when any of these are esteemed worth preserving, and pencils and paper begin to be distributed, the turning point with two R's is reached and an atmosphere of competition pervades the room where reading and writing is fairly begun. Having thus gained a familiarity with the appearance of letters in the concrete form of words, the alphabetic names having been gained incidentally in the writing and printing, their sounds are next sought by analyzing words in daily phonetic exercises, as the only road to correct spelling. Again, the class will originate and build up the lesson of the day, giving words containing the single or composite sound. Thus the teacher will say: "Let us make words that hiss, with this letter," *indicating* but not *naming* the letter *s*; the class in response gives "six, song, sum." "Now with this sound," indicating *sl*; and the children give "slow, sling, slip," etc. A dozen or more such words, printed and written by the teacher and rapidly called by the class, after satisfactory blackboard reproduction may be transferred to paper to form the basis of weekly review and of original sentence building. The simultaneous training of eye and ear is here stimulated by the gratification of the natural desire of the child to separate into parts, to investigate and rebuild. The completion of a required number of papers, together with rapid sight reading of the words and phrases, wins promotion to a book and opens to the first class the "First

Reader." The method pursued with it, however, is the same, arriving by repeats to beginning from end of sentence, reading always in concert. The class gradually may—in two divisions—take paragraphs alternately, but not until a review of the entire book, may independent reading be expected. The "Third Reader" marks usually the limit of capacity.

The same plan of proceeding, from concrete to abstract, is pursued in teaching arithmetic. As in this branch much depends upon a clear conception in the beginning, the manner of approach is everything. In observing the predilection always evinced by children for things in quantity, it has been found that number is more attractive when presented in groups as a synthetic whole. The number idea thus attained is followed with most ease through reduplication or subdivision of groups, and the unit finally reached thus linked with association is not so entirely abstract. The second step of combining and counting has likewise its attraction and association of return to the original groups. There are enthusiasts in child-study who affirm that the child's first number concept and numeral frame is found in its cradle-play with the ten fingers, and that therefore the decimal system of computation is the natural method and the most direct. Be this as it may, it is certain that any suggestion of avoiding the fatigue of mere circumlocution is to be welcomed by a teacher of the feeble-minded, knowing, as she does, how much must be accomplished in a brief period, and that the minds of her pupils must be trained and yet not strained by the study of numbers. With many young children—normal and abnormal—who count most glibly, the number concept is either wanting or limited to that gained through familiar use of certain objects, such as the parts of the body, the possible divisions of an apple, the windows of the room, etc. Upon this foundation, therefore, the teacher must begin to build, working from the known to the unknown. Let the child place in two groups as many cards as he has fingers. Telling the *story* of ten in two he finds five. Reuniting he next places his ten in five groups and finds two in each. Reuniting again and placing separately he finds ten ones. After repeated exercises like this he will be eager to put his work on the board and learns to transcribe the work from desk to board and write the *story* thus:

CASE H.

CASE I.

CASE J.

CASE K.

MORAL IMBECILES — MIDDLE-GRADE.

$10 \div 2 = 5$; $10 \div 5 = 2$; $5 + 5 = 10$; $10 - 5 = 5$; $10 \div 10 = 1$; $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 10$; etc.

Another time he finds that two cards added to his original ten will give him a number that he can separate into many *stories*, and the various combinations of twelve are opened up in the same way. Thus in each *story* told, he will find material for a new one, and so by repeated daily practice he becomes familiar with number in varied and distinct operations associated with corresponding figures and signs by original and independent action. As familiarity increases, action becomes almost automatic, and a class thus trained is enabled to take rapid dictation with plus and minus signs, often including simple fractions, such as: $3\frac{1}{2} + 4\frac{1}{2} - 4 + 2 - 3$. Such examples the pupil is required to illustrate, if only in simple lines or dots, both aiding and verifying his work, which must be read aloud before transcribing. Daily practice soon promotes rapid reading with rapid mental computation, giving solution of foregoing problem, thus: $3\frac{1}{2}$ 8 4 6 3. Conceptions of quantity and of measurement progress in the same way from the gallon to the quart and pint; from the dozen to the half-dozen; the fractions of the dollar come naturally to him, and from the foot-rule he discovers the value of the inch. In the beginning of constructive work, the square is to him a unit which by half and quarter foldings he reduces to inches and finds by practical experiment that his box one inch deep is two inches wide and two long. As the number idea deepens through practical experience, still working with objects, he will become able to discover and state how he must get out card-board for a box six inches long, four wide and two deep, thus: "I must have depth plus the length, plus the depth again, $2'' + 6'' + 2'' = 10''$, and depth plus width plus depth again, $2'' + 4'' + 2'' = 8''$. So my card-board must be 8″ x 10″." As two hours are daily given to construction work with both wood and card-board—the latter including furniture, toys and boxes in various geometric forms—there is ample suggestion for original problems which should also show sketch and working drawing. Not an unimportant part of class-work is the making of all exercise books and the portfolios, the laying off of the papers giving daily practice in dividing in fractional parts and in practical measurements. Materials required are: rulers, pen-

cils—never pen and ink—a few brass clips, some colored tape or ribbon, charcoal with a fixative, colored chalk or water color for decoration, a bundle of ordinary manilla paper and one also of the heaviest, toughest wrapping paper without gloss, of a shade to take color well, and which will fold and crease easily without breaking. The child is to be taught thrift and carefulness from the very beginning; he may have all the material he wants to use, but none to waste or abuse. Thus he will have to consider how the large sheet will best divide equally into a number of smaller ones, and this dividing in halves, fourths, eighths, etc., soon becomes automatic. The page is next to be so portioned off in thirds or fourths as to leave a proper heading, and an inch or so for margin upon which writing must not trench, is to be accurately measured and carefully lined.

The number of sheets, be they few or many, accomplished in any one study during the month constitute a book, and here is another source for emulation. The book fastened at top with pins or ribbon will need a cover, which calls for further exercise of judgment in measurement and careful cutting, while the imagination is quickened in the designing of decoration. The pleasure of competition and the excitement of fresh beginning adds a zest to work, and the sense of possession is gratified by viewing an ever-increasing store; while the habits of thrift, of deftness and of particularity acquired in practice with simple material will be invaluable in the sloyd class, where he is working with wood and handling tools. Illustration and decoration, however simple, should be encouraged, not only as another means of thought expression, but also as being a direct application of the lessons in drawing and modelling. Indeed for these children of middle grade, so slow in grasping or using artificial signs, it is to the broader, more apparent harmonies of form and color that we must look for that cultivation of the æsthetic sense which those of high grade are able to gain in musical harmony and rhythm. The influence of both upon the life is not only to harmonize and to refine, but the daily concentration of effort to modify, to adjust and to adapt; to change discord to harmony; to intensify color or to soften effects; to join or to fit things one into another; to make rough places smooth and the crooked straight; must tend to established habits moral and intellectual which cannot fail to mould and to build up character.

Manual training, to children of middle grade especially, comes with an active vivifying power. Utilizing the love of tools, inherent in the child, it attracts his attention rather than compelling it by superimposition; it concentrates that attention and bends it, in the first place, upon the teacher and the class instruction, or he cannot know what to do; next, upon himself, imposing a careful outlook lest he injure himself with tools, and finally, upon the work itself, to bring it to successful completion.

Relieving this tension, the work requires constant movement of the body, but while thus physically and mentally active, the child is still never free from the consciousness of a necessity for intelligent observation; and practical judging and logical thinking becomes thus a coincident growth. The rule and the try-square prove invaluable agents not only in forming habits of testing ability and deterring therefore from over-confidence and self-conceit, but in producing an abiding impression of the necessity for truthfulness. In this it forms a logical sequence to the kindergarten idea of occupations. Introduced as early as possible into the school period, it will prove equally a wholesome relaxation from, and the best preparation for, the purely mental exercises of the school-room. It is in such personal activities that the average child can best demonstrate his own individuality and satisfactorily prove to himself and to others the power within him, while on the other hand this power of doing, gained at an early age, inspires a love of work that best fits the individual for the exigencies of life. And yet the aim is not to teach how to make a living, but how to live; for instance, it does not teach carpentry or any hand-work as a trade, nor the making of pictures as a mere accomplishment, but it utilizes tools and exercises as a means of giving the child an impression of real work that will awaken and develop in him an inclination toward all forms of occupation; to discern beauty and to apply it. New opportunities are always open for growing strength and capacity; the building of artistic furniture will include experience in the treatment and preservation of wood, the use of filling, shellac, paint, varnish and oil. For decoration there must be training in modelling, drawing, painting, carving, and designing, and dexterity in applying design; and with knowledge of these, new fields open up in the arts

of pottery and metal working. It is by this broadening of thought and strengthening of will, through self-activity, that manual training prepares the child to enter upon any of the avenues to a life purpose opened to him in the trades, be it shoe-making or tailoring, carpentry or house painting, basketry or pottery; or the decorative arts, such as embroidery, carving or illustrating, which the training with needle, chisel, mallet or brush further includes. Various methods are means to this end.

Sloyd, or slight of hand, a system devised in Finland and introduced in the schools of neighboring countries and also in America, offers as its distinguishing feature, progressiveness. Based upon the idea that tool-work gives a dexterity to the hand that will be useful in any vocation, a series of carefully graded models are so arranged that each step with a new tool calls for a different muscular exercise. The lesson follows the same line as that previously rehearsed for teaching reading. The teacher explains model, makes before the class a working drawing, and each pupil then making his own drawing, works it out. The models begin with the simplest articles of everyday life—a window-wedge or a flower-stick—that can be made with the knife, the simplest of tools.

The next step is to the bench, where pencil, rule, and bench-hook form the basis of what is to be a gradually increasing store of tools. Numerous models give opportunity for such lengthened practice with one tool as the capacity of the pupil may demand, instead of dulling interest by a monotonous repetition of one thing. Each step with a new tool aims to quicken simultaneously thought and muscular activity; thus the plane and the various saws exercise differently the muscles of the forearm and shoulders; the drill-bit in boring, and the hammer in driving require each a different movement, and each and all demand observation from different standpoints. So also through the various models, bringing in the use of the pencil-compass and turning-saw working in curves and circles, and the spoke-shave and file in working down edges, the underlying principle of the models prepared, stands for progression from simple to complex, from concrete mass to abstract line. Elaboration, modification and even change of models, adapting them to immediate environment or to any peculiarity of the child, is advisable, provided such models do not depart from basic principles.

CASE A.

CASE B.

CASE C.

CASE D.

MORAL IMBECILES — HIGH-GRADE.

For this work of invention, for experimentation in pattern making, as well as for general practice, the preparatory class of paper-sloyd offers excellent opportunity, it being easier to demonstrate an idea in pliable cardboard than in the more resisting wood. Here the use of the rule, the try-square and large shears in the preparation of material, and the bending of heavy paper in the manufacture of various useful articles—portfolios, wall-pockets, picture frames, etc., is a direct advance upon the paper folding of the kindergarten; and the use of heavy cardboard in the construction of workstands, brackets, tabourets and toy furniture of considerable size, necessitating the use of knife and saw, of glue and shellac, approximates and prepares for as well as affords practice in the work of the regular sloyd bench. While in construction work the two systems, kindergarten and sloyd, are each the supplement and complement of the other, there is found a distinct hiatus in the training of the esthetic sense. The child, fresh from the sensuous color and beauty forms he has worked out in the many tints and shades of paper and plastic clay, has had glimpses of possibilities which are not realized in the monotony of neutral color and unbroken surface that meets him here. It cannot be denied that in practical means for decoration, in giving to the hand the power of the artist together with the skill of the artisan, sloyd beyond the beauty of truth and precision has made no provision. As one of its most earnest advocates acknowledges: "The most difficult thing that confronts a sloyd teacher is to make the problem in wood sufficiently simple, at the same time beautiful in form and interesting to the child. For this reason it is important that the teachers of sloyd and of art should work together in order that nothing but the best objects and illustrations be presented to the children."

It is interesting here to compare two systems that approach the subject from opposite standpoints; one begins where the other leaves off. Both are based upon correct pedagogic theory. In both the emotions and natural activities are utilized for a three-fold development—mental, moral and physical—and in both the environment suggests the models for education through the hand; but the models of one drawn through the interior home world are designed to work upward and onward with a growing experience by means of con-

struction toward the beautiful in art and nature, for which, however, it would send its pupils to other schools. It is sound, it is practical, but it is also utilitarian.

The other takes models from the outer world—the circle of the horizon, the moon or the flower, and all the forms of plant and animal life; reproducing and conventionalizing with the ultimate aim of beautifying and decorating the house, for the building of which it does not begin early definitely to prepare. It has breadth, it has culture, it has beauty, which is life. Its pupils could early make of a cabin a home of delight, but they might not at the same stage be able to build a shelter from the storm. This latter, a system of education through the hand, originating in America and already adopted in some of its large centers has, like sloyd, also crossed the Atlantic and has met with favorable consideration in both England and Germany. Having its foundation in nature study, its models are nearly all derived from that source, including an alphabet of design to be developed in the ambidextrous movements of free-hand drawing which are, as before stated, associated with physical exercises. Reproduction of models and of original design is encouraged in drawing, in color, and in modelling in clay, in plaster, and in wood. Constructive work includes joinery and cabinet work, and metal working; this latter, however, is not sufficiently coincident with the former to secure well-rounded development, and in the providing so largely for decoration before entering upon construction, the system is somewhat illogical. Broader in its scope and fuller than sloyd in its nature study, esthetic training, and art models, it yet needs to deepen in devising and providing those that relate to the practical and material life. Simplicity and freedom from complexity and excessive detail and cheapness of material commend this system. Blackboards and manilla paper, clay, chalk, charcoal and water color, wood and some few tools, place it within reach of all, and for models there is the whole outside world. By modifying and combining the two systems, we have been able to secure methods admirably adapted to the training of feeble minds.

High-Grade Imbeciles who have the advantage of kindergarten training, acquire by means of its various occupations clear concep-

tions of form, color, and much practice in numbers. As the kindergarten period in most training schools for defectives is not only prolonged beyond the ordinary three-year term, but is further modified into a daily five-hour system, facility in reading and writing is also gained here by these children, by methods more condensed and in less detail than those which, as we have noted, the middle-grade child must laboriously pursue generally after entering the school proper. Yet even with this preparation not only is it inexpedient for these children to attempt to pursue purely mental work further than the ordinary intermediate or the grammar school course, but these must be a modification of that course; some studies omitted altogether, and others so attractively presented as to make a mental impression sufficiently strong to induce satisfactory reproduction without causing undue effort or fatigue to the pupil. As independent study during prolonged periods is for feeble minds an absolute impossibility, some plan other than successive memorizing and recitation must be devised, and here as in the kindergarten, the teacher must live with and work with her children. Quick to notice individual needs, she must be equally rapid and original in adapting methods to the case in hand; in other words, she must use her methods for the benefit of the pupil—not be enslaved by them to his detriment.

As many of the class must devote a large portion of the day to music practice, to manual, industrial, and physical exercises, and to military drill, the time allotted to purely abstract mental work should not be wasted in a mere turning of leaves. Books, which should be attractive in binding and type and well illustrated, are best utilized as reference for gaining additional information upon subjects that have been previously presented in object lessons of minerals, of plant and animal life, of simple every-day physics, etc. So also geographical readings should supplement nature study and follow, not precede, a knowledge of land and water divisions gained first hand from the child's immediate environment, and reproduced by him in sand and in clay. Increased familiarity and greater proficiency will demand later more permanent material for relief-forms, and reproductions of these in flat color will lead naturally to the more abstract and, therefore, more intellectual work of drawing maps in outline.

The study of history may be pursued in connection often with geography, and in much the same way. Beginning with talks on familiar topics and current events, note-taking may be encouraged; and short compositions lead up gradually to abstracts of historical periods, emulation being excited by competition in blackboard reproduction and illustration. This should be the constant spur in mathematics also. From the simplest operations with objects in the kindergarten on to problems in computing interest, volume and capacity, and the practical measurements that the working drawings in manual training require, the blackboards should always present the best effort of the pupil, and as proof of advance should frequently exhibit original problems.

The love of music, which seems the one clue leading through the maze of the development of backward races and of degenerate natures, is strongly evidenced among the feeble-minded. Susceptible not only to its influence, but to its training, it is remarkable how readily they seem to absorb rather than to decipher the mysteries of notation, harmony and rhythm. True, those successful in instrumental music are chiefly of high grade, nevertheless a child of middle grade will frequently evince an eagerness and perseverance with notes, in marked contrast to his apathy and indifference to letters and figures, finally relinquishing, not without a struggle, his instrument, should it prove hopeless, but glad to retain his place in a singing class where association and imitation makes the work comparatively easy for him.

From these classes practising simple songs and hymns in unison, and tested from time to time in scales and intervals, may be selected those capable of advance in sight-reading and part-singing, who shall become members of a regular musical organization, training for band, orchestra or chorus-singing, while contributing at the same time to the social demands of community life. The exercise of intellectual and moral qualities are thus coincident and the cultivation of the altruistic sense is not less valuable than that of the artistic. Effects are marked too, in the softening of rude, surly natures, by the necessity for association and constant interdependence required in the production of harmonies with different instruments. Comparative simplicity, as well as convenience in providing for large

Case F.

Case E.

Case H.

Case G.

MORAL IMBECILES — HIGH-GRADE.

PLATE XXVII.

classes, has in most training schools given the preference to wind instruments. The exercise of the respiratory organs is another advantage; and, moreover, the strengthening of facial muscles in daily practice has proved an excellent corrective to the imperfect enunciation and slovenly habit of speech common among the feeble-minded. These pupils early taking their parts in the light popular airs of the day, chiefly for marching and dancing, come in time to render very acceptably the music of such composers as: Balfe, Bellini, Donizetti, Flotow, Gounod, Rossini, Verdi and Wagner.

There are not lacking data to show excellent results attained also with violin, piano, and even pipe-organ by feeble-minded children, such, of course—unless perhaps *idiots savants*—being generally of high grade, for where there has been failure in attaining a knowledge of letters and figures, the mastering of notes and rhythm is exceptional. An excellent device for aiding this work, however, is based upon the object plan, found so useful in training for number concept. Notes and accompanying signs of a size sufficiently large to handle, are cut out of cardboard and arranged at will or from dictation, on a staff also made of cardboard or of light wood and mounted in a frame. Interest thus aroused and attention concentrated, the arduous task of learning notes and relative values is simplified and transformed into pastime. In the training for sight-reading, various systems have proved successful, the Tonic Sol-fa, the Chevé, etc., but here, as in every other line, the versatility of the teacher must arrange and adapt systems to actual needs.

Such a class in sufficient numbers under an efficient leader may be brought to render with accuracy and expression both sacred and secular music, and even to give very creditable presentations of light opera. The mental discipline for these children in the study of music fully equals that which they gain from books; moreover there is greater stimulus both in progress and in aim. In individual practice here, just as in military and physical exercises, there is with the pupil an ever-present consciousness that any mistake or failure on his part will mar the harmony of the whole, and seriously affect the work of others in the test of the concerted practice, in which each and all are eagerly interested. Thus both pride and fear impel advance in a study which at each step offers compensation, encour-

ages to fresh endeavor, and tends to elevate and refine. Indeed advance is more rapid, and mental development more marked in music than in any other medium. The excitement of pleasurable emotion reducing fatigue, places it more in the line of diversion and rest from more strenuous occupation. Places in band, orchestra or chorus are eagerly sought, and withdrawal or suspension is accounted punishment most severe; the benefit to a whole community of being daily brought into touch with melody and harmony is incalculable, so that as can well be seen, music is an indispensable factor, becoming a component part of community life as it is of the school curriculum.

Of the Backward or Feebly-Gifted, the class last named in the educational classification, the question naturally arises, If not defective why has it place here? If? That is just the point! Clearly, the true condition, whether defective or merely unnatural, remains to be proven, and is proven mainly by retrogression or advance under training. Moreover the character of the training may itself determine the question. Fortunate, therefore, if a free atmosphere, be it nursery or kindergarten, give opportunity for self-expression and determine the necessity for special training before neglect or mismanagement interfere with the aim of that training. It may be a case that calls for simply more time, and removal from the atmosphere of competition that dazes and stultifies the timid nervous child. A prolongation of the ordinary primary school course, may then be all that is required to establish a certain amount of confidence and self-reliance, permitting a return to regular classes.

Again, lack of power, of attention, or of concentration, or that general debility which yields so readily to fatigue, should suggest such modification as would insure rest through the medium of variety and of change. The experienced teacher working with the watchful physician may later find the elective course the only one possible, providing always for physical training and exercise, and for broad mental culture rather than for study on close lines. The nergy as it is developed may be gradually directed into channels ving definite aim and producing daily results that encourage and in effort. It is to this form of prevention that the attention of ublic is already directed, and the methods founded upon expe-

rience and formulated in the training of mental defectives are those now being adopted, with modifications of course, in the classes rapidly becoming recognized as a necessity in the large cities of both England and America. For it is generally admitted that for the backward or feebly-gifted on the border line of deterioration, which either undue stimulation or lack of proper emulation is sure to precipitate, a special training is absolutely essential.

Protection from "cram," that crying evil of the schools, means for many, prevention of defect. The opportunity therefore to develop slowly, to experiment, to test means and finally to select avenues best adapted for advance, may so develop and strengthen dormant qualities as to lay the foundation of character insuring usefulness and success in a chosen vocation.

If, on the other hand, weakness be found degenerating into defect unfitting the individual for an independent existence, special training is then imperatively needed to arrest deterioration and to prepare the way for congenial employment and consequent happiness in community life.

Active sports are to be encouraged, not only as being simple, natural and healthful, but, for the defective, absolutely essential. Feeble circulation is for him the baneful author of many ills, as malnutrition of muscle, of brain cells and nerve tissue is sure to bring about incoördination, chorea and general stupor affecting all the faculties. No matter what the quantity of food taken into the system, if it is not properly distributed, that part that fails to receive nourishment starves. For this reason the blood must be sent on its errand of supply and its most efficient motor is pleasurable emotion. The effect of dancing is one of the best exponents of this theory, and is an amusement in which most children delight, and many excel. Entire relaxation after occupation or drill should be encouraged by free sports and games; running, racing, swinging, leaping, vaulting, quoits, tennis, croquet, etc., in all of which many soon become expert. Foot-ball, basket-ball, and base-ball matches are as sharply contested, and watched and discussed with as much interest as is any game of professionals, children of even low grade often being able to give points of a game and to keep or at least follow a score.

Although free play and active amusements have their place in promoting healthy circulation and consequent growth, we must not lose sight of the fact that any positive defect, deformity or awkwardness may soon, if persisted in, become habitual. This may be checked and corrected only by special training in exercises adapted to peculiar needs; such tendencies even during play hours being kept under restraint, lest indulgence neutralize efforts for improvement. The dragging footstep so characteristic of the imbecile, which when coupled with the droop of the whole figure amounts in the lower grades to a shuffle or often to a mere lurching forward, should early receive attention. Timed races down hill and counted strides up, lending exhilaration and stimulation, may aid the walking contests, which, in the school-room, should break the tension of occupation periods, each stepping in turn briskly, yet noiselessly, up and down the room. Stooping may be corrected at the same time by balancing a book, a basket, or any light object on the head. Not only will this be found to be a corrective of bad habits, but experience has proved it also a means of acquiring both poise and ease. Guided to a kindly criticism of one another and inspired by a generous emulation, children soon learn to recognize defects; when various free calisthenic exercises may suggest themselves and be added as additional aids. Light ladders so constructed that they may be raised and lowered at will are valuable adjuncts to school-rooms or play grounds. Placed upright and gradually approaching the perpendicular, they will bring all the muscles into play and also promote grasp power. Placed horizontally on the floor, many errors of gait may be corrected by stepping between the rounds; confidence may be stimulated by emulation, and precision by clapping, singing, counting, or even by the tap of a drum. Somewhat similar results are attained by stepping on bricks placed at regular distances, but this exercise tends to develop more the ankle and hip-joint, whereas the other necessitates the much-needed bend of the knee. Similarly arm-swinging at the blackboard will promote muscular coördination, and should precede the ambidextrous drawing drill, itself a most efficient agent in simultaneous physical and mental development, the two drills mutually aiding and testing one another. Any of these simple exercises in

the school-room, practiced for a few minutes daily, and conducted by a teacher who is able to vary and adapt them, will not only go far to correct bad habits, but will prepare the child to enter intelligently upon the regular physical training drills and the work of the gymnasium. These should be given only by an expert, and the children should learn to recognize in them a means to a definite end. In fact, they often do gauge themselves and one another by the test of physical power; as one boy puts it, "I must know a good bit, for I'm getting strong."

Physical training, in its threefold aim of curing defect, building up strength, and increasing power, includes both treatment and training; for frequent baths and massage must cleanse the skin, excite the secretions, arouse functional activity, and bring the whole body into readiness for the struggle to secure, through constant and persistent movements, that proper respiration, circulation, and coördination so essential to the perfect physique, and so lacking in the defective. Here the advance from simple to complex—that underlying law of all education—must know no variation; there must be no hiatus and no strain in the process, if the result is to be a frame well knit, of good balance, with muscles perfectly subordinated to the will. To this end the Swedish Ling system is especially adapted. By this method each and every part of the body is exercised successively by a well-graded series of movements. When these can be executed in response to command, then the drills with music follow; these combining rhythmic grace with close attention and obedience to suggestion are, as being more intellectual, better adapted to a growing intelligence.

Building upon these conditions for additional results come military drills, the educational value of which, for the defective, is being generally recognized. Here in the united action of close rank and file, the relation of the individual to the community is sharply defined. The boy finds his level at the outset; learns that he must attain in "squad work" a certain standard of precision, attention and readiness of movement before he is permitted to "shoulder" or "present arms" with his comrades, who in "successive work" have already entered upon smoothness, accuracy, and reliability of movement; lest any failure of his affect the order

of the whole. Thus the uniform comes to be to him not a mere matter of "buttons," but a type of that genuine uniformity of good bearing, of movement, of prompt action and of courtesy which goes to build up a good member of any company, be it as soldier or craftsman. Indeed we are able to trace much character building to just such training, which one can no more afford to dispense with in a training school or in a colony, than in a garrison, for it is needed not only to vitalize, but to sustain enfeebled forces. Self-control and the power to arrest—that safeguard against catastrophe—is the chief moral gain acquired by the "setting-up exercises," which bring the entire muscular system into coördinated action, at the same time promoting deep and proper breathing and the full and correct use of the respiratory organs. It has been computed that from four to seven times as much oxygen is taken into the lungs during these exercises as during a corresponding period of repose, and this perfect oxygenation, vitalizing all the organs, insures normal functioning and consequent elimination of the effects of wear and tear.

If such be the effects, mental, moral, and physical of this training, it is apparent at once why these movements should form part of the daily school program, until sluggishness yields to habit and response to command becomes intuitive and voluntary.

But, in addition to the awakening and energizing effect of the drills, the apparatus of a well-appointed gymnasium is needed to strengthen and to build up the system and to correct defect. The use of the spring board, for example, supplementing the walking drills, encourages the dragging step to gain elasticity; the swinging of clubs and dumbbells induces free coördinated action as well as concerted movement and repose. This last, as the very initial of power, should mark every step in this most important training; the relaxing into a state of passivity, the starting into action, and the return, each constituting a separate act of the will, for it is the lack of ability to recognize and to do these things that characterizes the great mass of incapables.

Of equal importance with the training in muscular coördination is the training for grasp power. Indeed, were we to class the muscular as a sixth sense, we might, with even greater show of reason, recognize the prehensile as the seventh sense, for although

it combines the tactile and the muscular, it yet is neither the one nor the other. Viewing the close relation existing between physical and mental potentialities, one might almost call this their meeting-ground; so close do they come, in fact, that the same terms are used to express action in both. Thus in the culmination of physical or of mental effort we grasp or lay hold of—either with the hand or with the mind. Take, for the sake of illustration, one whose fingers have been amputated. He has not only lost hand-power, but his whole thinking apparatus, so to speak, must be readjusted; he can no longer grasp or take hold of as he once did; he must arrive at conclusions in some other way that must be laboriously sought and can be found only through painful experience. His loss is not only physical, but mental as well, and means for him a new education, or at least involved mental processes. Now if this be true of one suddenly deprived of this sense avenue—for I contend it is a real avenue and not a mere figure of speech—may it not serve to reveal the mental condition of one who has not known its benefits? Those weak, nerveless fingers of the untrained imbecile, which can lay hold of nothing and retain nothing within their grasp, and the nervous clutch, unconscious of its violence, are equally expressive of, as they are linked inseparably with, mental incapacity. To modify this disability and to strengthen what remains is the *summum bonum* of our endeavor—the beginning and the end of training.

In the simplest operations of sense awakening in the idiot, as in the systematized work of the kindergarten, in the industrial occupations—varying from simple to complex to suit capacity—in the manual arts, from the simplest tool that merely punches a hole, to the wielding of hammer, saw, or chisel, on to the finer cultivation of finger-clasp of pen or pencil, needle or brush, this single aim of gaining grasp-power may be traced. This attained in its fullness, all other power is included. In fact as an indication of capacity the grasp-power is superior even to the language test for which so much is claimed. For, be it remembered, the idio-imbecile who can wash a dish, clutch a cloth, handle a broom, or lift a child may yet have no greater power of articulate speech than the idiot he carries. The imbecile of low grade may be quite as mute as he, or may only chatter like a magpie. Yet he does all these things as well or bet-

ter, and, moreover, can handle with ease the heavy utensils of the kitchen, add coal to the fire, can guide a horse, hoe a garden-bed, or pick vegetables; here, too, we meet variations of physical grasp associated with perceptible advance in mentality, for he can hold needles and count stitches, setting up and taking off work, can wind, plait, weave, and accomplish a variety of finger movements while still supporting or grasping his work.

To follow the middle grade in the development of this same sense, we find that he displays greater intelligence in the performance of all these tasks; a fuller mental grasp of situations, coupled with both physical and mental capacity for doing more. A grasp upon tools and a knowledge of their uses make him a capable worker in the various handicrafts; he can, in fact, make and carve furniture or help to build a house. The power of oral expression may or may not be materially increased by training; he may or may not learn to read, but grasp-power registers for him a distinctly higher plane of intelligence.

In the high-grade we find a perceptible relaxing on one hand as he reaches out on the other; he can do almost anything, but probably does not make so good a "man with the hoe," because of distinctly marked proclivities in more abstract and consequently more intellectual directions. Tools he can use, accomplishing finer and more difficult work; but he can also clasp and use pen and pencil with a purpose as clear as he brings to his type-setting or to finger pressure upon organ, piano, or violin. Thus through slow gradations, with regular "stop-off" as limit is reached, does the hand alternately lead and follow mental development.

In its effort at all round development, training is constantly appealing to the moral and ethical sense; neither encouragement, discipline, nor religious influences are lacking; yet we may not hope for the attainment of more than a child's standard of right and wrong. One who speaks as a child, thinks as a child, and understands as a child, can never, even if arrived at years of discretion, put away childish things, and should never be judged according to adult standard, and we who know that these, apparent men and women are so in years only, never look for a greater degree of responsibility or of spirituality than is to be found in the ordinary boy or

Case A.

Case B.

Case C.

BACKWARD CHILDREN.

PLATE XXVIII.

girl. Nevertheless the perpetual aim of guardianship, as of training, is to maintain this standard and never to tolerate the excuse sometimes given: "How could I know I was wrong if I am feeble-minded?" They do know right from wrong and are quick to report wrong in another; and in the way they know, and just so far as they know, should they be held firmly accountable. At the same time it must be remembered that they receive only in childish fashion moral and religious truths to which, from force of environment, imitation, habit, and largely because of protection from temptation, they in a general way conform. Thus they have a child's idea of an overruling Providence and of the Gospel story; they repeat prayers and sing with delight the hymns and carols of the seasons; they are decorous, giving at least an outward show of reverence, during the religious offices, yet they are incapable of deep convictions, or of reasoning out a truth. To a large number the great evil in lying and stealing is the being found out and punished. Will many normal children, however, go further than this?

The disadvantage for the feeble-minded out in the world, or in the family, is that there is either too little or too much expected of them; they must be required to stand up, but they cannot stand entirely alone. Like all children, they need and must have a certain moral and sustaining brace to hold them up to a standard, and this they can get only from those who understand them and who know how to deal with them, and by association and comparison with their own kind.

As aids indispensable in the training of feeble minds, we have classed Environment, Association, Amusement, and Discipline in their four-fold influences one might almost say; for they combine to quadruple one another, and all are needed, nor can we afford to lose one element of our motor power.

The environment specially adapted to this work is one that will lend variety, and help to stimulate and develop. True, earnest work may be done anywhere and succeed in the face of many difficulties, but in the choice of location, one should be influenced by considerations, moral and esthetic, as well as by those of convenience and hygiene. For a life in the open air, and to induce healthful exercise, valley and upland, running streams, groves and open sunlit

spaces are necessary. Windows should have a broad outlook and show attractive vistas, for earth and sky and water are as pictures and open pages in the hands of a teacher who understands the molding and building of taste and character. Guggenbühl, be it remembered, ascribed not a little of his success in sense awakening to the wonders of Alpine scenery and the panorama outspread before the dwellers upon the Abendberg.

If attractive interiors with decorations varied with the season, be of use in awakening the dulled senses of the idiot, of how much greater value is such an agent here, where not only are the senses to be kept aroused, but the grosser instincts are to be held in abeyance and dulled, by cultivating the refined. Thus the aspect that dining-rooms, dormitories and school-rooms present; the character of music and amusements; the selection of books and pictures, which are a part of life; the matter of association in grades; the manner and bearing of those who come into daily intercourse with the children; all, in fact, that pertains to the manner of living, are inseparably mingled, and combine to form an environment constituting atmosphere, not one element of which may be deemed unimportant; for the defective, even more than the normal, needs that "outer" which Froebel shows "ever conditions the inner."

A question often asked is, What is the effect of association upon this class? The weak will, naturally, is subordinated to the stronger; and where there is admiration, imitation follows even more naturally. Thus the character and deportment of those brought into daily and immediate contact with the children are factors in training, so essential as to necessitate great care in selection; the results in general tone, gained from refined association, will become noticeable even among younger children of the lower grades. In illustration of this: an attendant newly entered, and not quite up to mark, was noted passing repeatedly without necessity and without apology in front of the officer in charge of the children's dining-room, evidently utterly unconscious of any discourtesy; yet a boy of low-grade, in his duties of serving, passed instinctively with bowed head and a low-voiced "excuse me." His was not an individual, but a typical case; a little thing one might say, but an exposition of the training his group had received. As to the association of

mental defectives with one another, our whole argument has been for congregate over solitary training, because the child is always best among his peers, and this grouping according to grades of intelligence, is a classification arranged not only for the school-room, but it extends throughout the daily living experience, in the clubs for boys, in the circles for girls, in dormitories, dining-rooms, and play-rooms. Such association corresponds largely to that of members of a large family, or seeks at least as much as is secured in many schools for normal children, by the arrangement of separate forms for children of similar age and capacity; needing always of course, that oversight that would detect and remove immediately any case of moral obliquity that might endanger the well-being of the whole. Under these conditions, general association has proved not disadvantageous, for an imbecile would be no more influenced by an idiot than would a normal child by a baby of the household, although the idiot might gain somewhat, just as the infant might. Indeed, a perpetual childhood creates a certain kinship, and the relationship of grades is somewhat similar to that of younger and older members of one family. This is evidenced in institutions, in the care bestowed by boys upon epileptics and cripples, and in the girls, whose tenderness for some little weakling betrays the unconscious maternal instinct, coupled with all the simplicity of a child over its doll. Nevertheless, clearly and for definite reasons, the classification does not permit close companionship of different forms of defect, but calls for separation, that each may go to his own and avoid even the possibility of absorption.

Amusement, a preponderating element in education, and coming to be regarded more and more as a much needed relief to high pressure, has always been a recognized agent in training feeble minds and bodies; where rest, including exercise, has had to follow effort, and diversion to succeed occupation in one unvarying round, lest overstrain should bring about sudden collapse. Possessing, therefore, both an educational and a therapeutic value, its providing, devising and distributing forms no unimportant part in the work of direction, in order that it may be so apportioned as to meet the needs of all and fulfill its aim of recuperation without degenerating into the weakness of dissipation. In addition to the periods of free

play, the house games and field sports of the daily programs, each season brings its special diversion, realizing pleasurable anticipation and inducing self-control for fear of losing the coveted birthday feast, picnic or excursion.

Still more specifically educational are those forms of entertainment that bring into practical play the specialties of the school training; concerts—vocal and instrumental—operettas, dramas, dancing and athletics. Evenings with the stereopticon are not only illustrative of but a stimulus to the study of plant and animal life, geography, history and current events; one and all are expected to contribute information as called upon, or, on the other hand, the members of a class may each in turn be required to explain the details of the pictures, which, on occasion, may be further emphasized in song. In this, also, as in the theatrical presentations, the principle of co-operation for mutual benefit, as well as the social obligation to others, is enforced, the result often being that a club or a circle offers to contribute to or to assume the responsibility of some one entertainment during the year, frequently accomplished without assistance or suggestion. The composing, printing and distributing of programs and invitations; the arrangement, even the originating of costumes, and the selection and rendering of music, often displaying not a little ingenuity, wit and humor without coarseness; and these efforts are always sure of winning enthusiastic applause from an appreciative audience. Those who undertake these entertainments are simply working out an experience gained through careful training in the preparations and rehearsals of the plays and operettas which, in every large training-school, mark the holiday seasons. These, while satisfying that love of impersonation and "dressing up" inherent in all children, supplement the work of the school in memory training and general culture, and give a stimulus and inducement to redoubled exertion, as well as to the maintenance of good records, for to be included among the *dramatis personæ* is a much coveted pleasure and exclusion is accounted a severe discipline. In view of the egotism and vanity of these children in private life seeking always to be in evidence, their simplicity and unconsciousness on the stage betrays their intense childishness. They become interested in the play as in a pretty game, give no thought to the

CASE D.

CASE E.

CASE F.

BACKWARD CHILDREN.

PLATE XXIX.

audience, and often succeeding under circumstances where normal children might fail, they render with accuracy and spirit such operettas as Robin Hood, The Chimes of Normandy, The Mascot, The Four-leaf Clover, Dick Whittington, The Pied Piper, and Columbus.

The tonic effect of discipline is as necessary an aid in the training of the feeble-minded as is the stimulus of amusement. In order to make general and special provision to meet the needs of a perpetual childhood as well as of peculiar dispositions, wide experience is required in the character of grades, and a thorough knowledge of special nervous conditions is essential. In this as in every other feature of training, the advantage of numbers is apparent. A rule to which the many are subjected becomes a matter of course to the one. On the other hand the defective among normal children is either subject to no rule, and losing the benefit of both discipline and emulation, becomes spoiled; or else being the only one under special restraint, he resents it as tyranny, and wilfully or ignorantly misunderstanding, his nerves are kept in a continued state of tension.

With many the instinct of justice is strong; they recognize the abiding force of law, will yield to it themselves and report any infraction of it in others. They know when they deserve discipline, and, if given in the right spirit and by the proper person, will accept it; they are, however, quick to detect what is unauthorized, and to resent what savors of temper, revenge, or injustice. Let the child feel that the command is given because it is right, and he soon learns that the highest happiness is attained through freedom under law. Care must, however, be exercised that this growing appreciation be not crushed by a hasty judgment of mere acts. If the occasion must be met, it is generally found best to make the punishment fit the offense. Thus, one given to wandering from his seat is made to stand, for a short time, where he is found, with a book on his head; an incessant talker may have the reminder of a handkerchief bound lightly across his lips; a loiterer at recess is placed for several days in charge of a comrade who is to bring him in promptly; a persistent disturber of the peace is set aside with a paper cap drawn over his head, a simple effacement for a

short period. If sullenness, obstinacy, or carelessness necessitates more stringent measures, the deprivation of some luxury, such as sweets or an amusement, is often sufficient. Bad habits may necessitate entire separation from companions for a day or two at hard work, or isolation in a quiet room, always, however, with something to occupy the mind—books, pictures, toys, games, or work. The most severe punishment that could be meted out to one boy was to cut a button off his coat; to another, to deprive him of coffee, of which he was exceedingly fond; to another—that usually accorded persistent runaways—the wearing of a dress. These last, the victims of a veritable "*wanderlust*," are more to be pitied than blamed, for the impulse amounting almost to insanity is almost as uncontrollable. Only in very exceptional cases, where the child unusually refractory is in full health, may the deprivation of food be permissible. All too often may defective conditions be traced to malnutrition at some remote period, so that reduction of diet as a mode of punishment is not to be advocated. On the other hand, a change of diet becomes a necessity in cases where naughtiness, so called, is in reality physical disability. The child is ill, its nerves worn to a thread, and examination will reveal a furred tongue, foul breath, and tears very near the surface; so miserable in fact that it must give expression to its feelings, and "naughtiness" is the result. A cathartic—small doses of calomel or salts—instituting, as it were, a physiologic house-cleaning, a day or two in bed, a diet of bread and milk—hot in winter and cold in summer—will work wonders, morally as well as physically. Statistics show that 10 ounces of bread and 1 pint of skimmed milk, equal in nutriment a diet composed of 8 ounces of soup, 2 ounces of beef, 2 ounces of potatoes, 1 ounce of turnips, 4 ounces of bread, ½ ounce of butter, and 1 cup of coffee containing 1 ounce of new milk and ½ ounce of sugar.

We are too often prone to judge a defective child by our own standards, forgetting that his are very vague and in matters of truth and honesty often absolutely wanting. The boy who will lie unblushingly, or surrender a stolen article from his pocket without confusion, has not yet reached a plane to comprehend "preachments."

Much may be done in the way of prevention by healthful emulation and the offer of simple rewards open to all; such as good conduct tokens, an honor-medal or trinket, a simple school-treat or excursion, or even the privilege of better material for good workers.

A plan that has worked well with the brighter girls was suggested by a friend who gave for the purpose a silver bracelet, the enameled clasp bearing the legend "Study to be quiet." This won as a reward for well-doing was worn for a week, but withdrawn upon dereliction of duty.

An outward and visible sign of approbation means a great deal to defective children, and the effort to attain it or even to win a word of commendation will often effect a diversion and clear the atmosphere for the day. To be sure there are all kinds of nervous temperaments acting and reacting one upon another, and bad habits and exaggerated impulses require sharp bracing up from time to time. No one recognizes this more fully than do the children themselves; just as a boy seated one day at my office door, to the inquiry, "Why are you here?" replied: "Me bad boy, Doctor make me good," coupled with a very suggestive patting of the hands: and the Doctor did, and in a few minutes he was happy with his boys going out to dinner.

On the subject of corporal punishment, there is a great divergence of opinion. Down contends that it should be strictly forbidden. Shuttleworth says: "Corporal punishment is rarely beneficial; yet there are cases where pain wantonly inflicted on others is appropriately visited by pain inflicted on the offender." My experience is that there are occasions calling for heroic treatment when nothing but corporal punishment will avail. A few light taps in the gluteal region with a paddle, hair brush, or a slipper, will often be sufficient to bring a sense of physical restraining force which the child really needs and unconsciously craves. Some years ago, on a Christmas morning, a boy enraged with a comrade made a sudden and unprovoked attack upon him and blacked both his eyes before the attendant could interfere. After the spanking—which he acknowledged he richly deserved—we shook hands and parted the best of friends. At dinner he was the merriest at his table—where twelve boys disposed of five turkeys. He took part in a play in the afternoon, and gay and

light-hearted danced the evening away. Meeting me on the way to the dormitories, he threw his arms impulsively around me, exclaiming: "It has been such a happy day. I know I deserved punishment, but if you had locked me up, or put me to bed, I never should have forgiven you." This was by no means the last of our encounters, but as before, we regularly parted good friends. Another incident not to be forgotten, transpired a few months later. I had told him that it was better to think twice before speaking, and one morning he came to make a confession. A boy had called him an ugly name, "And you know," he said, "you told me to think twice before speaking, so I kept quiet and did not say anything." Upon my congratulating him, he hung his head and replied: "Yes—but—I blacked his eye for him." He was subject to delusions, and confided to me on one occasion, that the reason he was so good, was because he had had precisely sixty spankings in early childhood.

Not infrequently a child will suggest its own punishment, as in the case of a boy persistently unclean. All milder forms of correction, such as light diet, bed, loss of dessert, etc., had been tried without effect. Finally one day he exclaimed: "I won't be good until I'm spanked. My mamma always spanked me for this, and it does me good." He was right, for two light spankings proved effectual. Another boy having the same habit responded to like treatment, and for over three years gave no trouble. A high-grade boy of 19 had committed a fault that, although clearly proven, he would not acknowledge. Every effort was made to gain the confidence which he doggedly refused. Separated from his companions, placed on low diet, exercising only with an attendant, still he was defiant. Finally driven to the last resort, I spanked him, and the second light stroke of the hair-brush brought a flood of tears and the confession, as he sobbed out: "Doctor, why didn't you spank me long ago?" Now and again when I meet him, he felicitates himself with: "I tell you that spanking did me good."

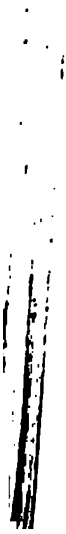
Said a good magistrate in a neighboring city: "If parents would attend to their duty and punish as the good Lord has taught they should, there would be no need of juvenile courts. Because one father is a brute, there is no reason for ten others to be fools and hand their children over to the law for correction." Yes, that is it!

Case A.

Case B.

IMBECILES BY DEPRIVATION.

PLATE XXX.



Case H.

Case I.

IDIOTS — SUPERFICIAL EXCITABLE.

PLATE X.

Sentimentality and "gush" take the place of true sentiment and common sense, and the children are the victims.

The following abstract, taken from an educational journal, will best emphasize the good man's excellent theory—well proven in my own experience: "I know a teacher who, priding herself on 'no corporal punishment,' says she has found it works a great deal better and takes hold of the child a great deal better if she holds her punishments over the child for twenty-four hours.

"It is her custom to say to the child, 'I am too busy to decide what to do with you to-night; but come to-morrow morning ready for your punishment.' This, plus a day of 'freezing the child,' as she called it, usually subdues even the most troublesome.

"There is no doubt but that the child is subdued. During all those hours that intervene between the teacher's threat and the promised punishment, the child's mind has been sending its depressing thought-waves along the nerve-wires to the emotional centers; thus the physical vitality has become impaired, and the child is subdued, just as anyone would be under the nervous dread of an impending evil. If such refinement of brutality is to be the substitute for the old-time 'rattan,' let us, a thousand times better, have it back, the time-honored rattan; give the child the old-time five blows on the hand, and send him out at recess to forget all about it in his play.

"Any course of discipline that plays upon the sensitive vital centers of a child's nervous organism, is criminal. Fear and dread depress the heart-centers; they lower circulation and respiration; and for any teacher who would thus offend one of these little ones it were better for her that a millstone were around her neck."[1]

An illustration of the practical application of principles and methods discussed, may be found in the following outline of a day's work.

SCHEDULE.

KINDERGARTENS A B C.

For Little Children of Low, Middle and High Grade, to be Modified According to Mental Capacity.

A. M.

9.00. Morning talk and songs.

9.30. Dictation with gifts, and reproduction.

10.15. Recess; all reassembling for marching, games, and songs.

[1] The Child's Emotional Centres, by Mara L. Pratt, M.D. Child-Study Monthly, February, 1896.

11.15.	Lessons in exercising the senses.
11.30.	Object-lesson.
12.00.	Closing song.
P. M.	
2.00 to 4.00.	Occupations alternating with songs and calisthenics, or clay-modeling, drawing, and primary lessons in reading and numbers at blackboards. These exercises to be supplemented and aided by nature studies in the open: watching birds, squirrels, rabbits, and domestic animals, gardening, visits to the workshops, the bakery, the laundry, etc.
4.00 to 5.00.	Free play in the open.
7.00.	Bed.

LOW-GRADE SCHOOLS.

A. M.	"A" GIRLS.	"B" BOYS.
9.00.	Morning prayer, talk, and hymn.	
9.15.	A lesson in phonetics, form, and color.	
9.30.	Exercises at blackboards; simple drawings and reproductions of number and word lessons, aiding speech and cultivating observation.	
10.00.	Cutting and sewing strips and winding balls for carpet-looms.	
	Knitting.	Braiding straw for hats.
10.40.	Calisthenics.	Calisthenics.
11.00.	Knitting and sewing.	Carpet-weaving.
12.00.	Dismissal in order.	Dismissal.
P. M.		
2.00.	Object-lesson with practice in articulation.	Knitting caps and hoods.
2.30 to 4.00.	Simple industrial occupations and window gardening. Practical exercises in folding linen—napkins and clothing from laundry. Lessons in knitting, crocheting, and sewing.	Tapestry and carpet-weaving. Basketry and mat-making. Practical exercises in household service.
4.00 to 5.00.	Exercise in the open air.	Military drill.
7.00 to 8.00.	Hand work, alternating with games, dancing and music.	

MIDDLE-GRADE SCHOOL.

A. M.	"A" GIRLS.	"B" BOYS.
9.00.	Morning prayer and talk.	Morning prayer and talk.
9.15.	Basket and raffia work.	Sloyd.
10.30.	Object-lessons.	Reading and phonetics.
11.00.	Gymnastics.	Object room.
11.30.	Number work.	Dictation and number work at blackboards.
12.00.	Closing exercises.	Closing exercises.

P. M.		
2.00 to 4.00.	Straw-braiding, sewing, reading, dictation, writing, and drawing.	Free-hand drawing, clay-modeling, and paper-sloyd; reading.
4.00 to 5.00.	Exercise in open air.	Military drill; gymnastics.
7.00 to 8.00.	Hand work, alternating with story telling, reading, sloyd, drawing, and modeling.	

HIGH-GRADE SCHOOLS (3 CLASSES).

A. M.	"A."	"B."	"C."
9.00.	Morning prayer and talk.	Morning prayer and talk.	Morning prayer and talk.
9.15.	Arithmetic.	Arithmetic.	Number work with objects; weights and measures.
10.00.	Gymnastics.	Reading and spelling.	Object room.
10.30.	Grammar and composition.	Gymnastics.	Gymnastics.
11.00.	History and current events.	Geography and map-drawing.	Word and sentence building.
11.30.	Geography.	Language lessons; historical stories.	Reading and writing.
12.00.	Closing exercises.	Closing exercises.	Closing exercises.
P. M.			
2.00 to 4.00.	Reading and spelling; sloyd or printing; drawing, modeling, or manual work; writing.	Sloyd; object-lesson; free-hand drawing; modeling; sewing, or embroidering; transcribing both from copy and from memory; writing.	Blackboard drawing; geography; history; nature studies; sloyd; drawing and modeling.
4.00 to 5.00.	Exercise in open air.	Exercise in open air.	Exercise in open air.
7.00 to 8.00.	Library alternates with band and orchestra practice.	Embroidering and sewing (girls). Drawing, modeling and carving (boys).	Quiet games, story-telling, etc.

Treatment.

Feeble minds are so often the cause, the result of, or so closely associated with feeble bodies, that an investigation into the physical conditions and possible causes, including the family history, the influences of heredity, and of past and present environment, the pres-

ence of positive defect which permanently arrests, or of disease, which merely retards development, is most important in making a diagnosis, and forms naturally the preliminary step in the treatment of the feeble-minded. Conclusions thus reached give very definite indications of future possibilities as to improvement or deterioration, and also, by aiding in classification, greatly simplify the work of training.

Such investigation may detect in some organ positive defect hitherto unsuspected for which there is no remedy; or it may reveal the presence of disease which may be relieved by proper medical or surgical treatment. Hence the importance of early seeking expert opinion before disease develops permanent defect. For example, imperfect vision may be some simple defect easily supplemented or disease remedied by the ophthalmologist, and the child, reclaimed from idle listlessness—the certain handmaid of degeneration—may become one of a band of busy, happy workers.

Defects of speech or of breathing may require the removal of adenoid growths, or some operation equally simple; or examination may show mental feebleness from deprivation only, and indicate a necessity of training not for a feeble mind, but for deaf-mutism.

Malformation or disease of the organs of generation, causing discomfort or irritation in the effort for relief, often establishes habits to which the child soon becomes a slave. In some of these cases circumcision may prove necessary, or the surgeon may give still further relief. The removal of the cause; strict cleanliness, and often a course of treatment tending to keep open the bowels and to cool the blood; a kind but firm discipline, diversion, and an unceasing watchfulness until a more healthful physical tone is acquired and the force of habit broken, will effect a radical and permanent cure. This watchfulness should be yet more insistent as sexual stirrings arise and puberty approaches. At such times there is always safety in numbers, and the child should never be alone. Free play, interesting occupations, a life in the open, will all contribute to his betterment, whereas a tendency to moody straying apart should always be discouraged. Punishment in bed is, for obvious reasons, most unwise, and both moral and hygienic laws dictate the single bed for both sexes. Indeed, sleeping or waking, these children al-

ways demand unceasing care; and the frequent rounds of the night-nurse are as essential as is the oversight of the day attendant.

Many troubled with enuresis may be led to self-control through medical treatment, training, and a little firm discipline. Given relief at regular periods during the day and night, and all fluids withheld for at least two hours before retiring, and for the brighter children, some slight penalty imposed after each dereliction; the treatment being thus moral as well as physical, becomes effective in many cases. Careful diet and simple remedies should insure other regularity and guard against diarrhœa, which may often be checked by a few drops of the extract of geranium maculatum combined with minute doses of opium, or by the use of a combinaiton of opium and Fowler's solution, or of chalk-mixture. If there be constipation with foul breath and furred tongue, calomel in divided doses, or a dose of Glauber's, or of Epsom salts, is excellent. An enema of tepid water, glycerin, and soap weekly, is good routine treatment.

This toning up and maintenance of the physical, as conducing to better mental conditions, must be the constant aim of skilled treatment. Foremost among the requisites to good health is the proper care of the body, of which, without careful attention and supervision, these children are incapable. This is a truth that even the tenderest of mothers will often fail to grasp; as one said to me on returning her great six-foot boy from a vacation: "He will not wash. He does not know how to take a bath anymore than a baby." It is just that lack of efficiency that never sees the necessity of doing anything thoroughly, that needs to be constantly supplemented, and that poor mother had more trouble in the care of her one boy than did his trained attendant with twenty. Neglect in this particular breeds many ills, and poor circulation, acid perspiration, and fetid breath—the usual accompaniments of feeble bodies—must be combated constantly, lest disease become deep seated. Spongy gums are most common, and the teeth and mouth need frequent attention. Listerine, Seiler's tablets in solution, or a 20 per cent. solution of sodium bicarbonate, used freely as a mouth-wash, after each meal, are all good aseptics.

The ears must likewise be kept clean and in good condition, as clear audition greatly facilitates progress in training, and the child

cannot afford to lose any advantage. An occasional application of cold cream, or of cosmoline—both within and without—will prove beneficial, and a hair-pin should be introduced gently into the ear to remove the cerumen, or, if there is the slightest sensitiveness, a twist of soft linen may effect the purpose.

The susceptibility to sudden changes, free and frequent perspiration, and a disposition to tuberculosis always noticeable, require the maintenance of equable temperature, protection from dampness, and careful attention to shoes and wraps, as well as to other clothing, which in winter should be light but very warm. For the same reason the food—given liberally in a form that may be easily masticated and digested—should be rich in oleaginous and phosphatic constituents, and should contain a fair amount of nitrogenous elements. Green vegetables and fruit are especially wholesome, as there is generally more or less tendency to scrofula. Simple desserts, candy, or other sweets are, it is needless to say, best given at mid-day. If necessary at all between meals, food should be of the simplest—milk and bread, or a bun always being best. In view of the fact that malnutrition, often through successive generations, is frequently at the root of the trouble, the importance of this continual building-up by means of a liberal and varied dietary, of bathing and exercise, occupation and repose alternating regularly, and the additional invigoration of massage, and tonics when necessary, becomes self-evident. Lack of proper food or of proper assimilation; want of repose, occasioned often by highly nervous states; an absence of purpose or of proper incitement, have each or all combined to bring about a starved existence; and the diseases to which the feeble-minded are most liable, plainly point to such condition.

Malnutrition may exist in utero or originate during the nursing period. This is as common among the wealthy, as among the laboring or the pauper class, for in all classes of life there are mothers unfit, unable, or unwilling to devote themselves to the work of bearing, nursing, and rearing children. How few really feel themselves called to the profession of motherhood, a profession to which the claims, the excitements, and the vices of society life are often as antagonistic as are the cares and anxieties, the brutalities and crimes

of the other classes. No woman laboring under any stress of living is capable of bearing or of nursing a healthy child; similarly in some cases a wet-nurse may be as entirely disqualified for purposes of feeding as is a bottle of unsterilized milk. If added to this, there be absence of modern means of cleansing, improper ventilation, insufficient warmth, or periods of isolation alternating with excitement equally pernicious, the child is easily launched into a deficient life.

There is much predisposition among the feeble-minded to lung trouble, coupled with a lack of resisting power; tuberculosis in various forms, pneumonia, pleurisy, and bronchitis are common. Tonsillitis, pharyngitis, laryngitis and rheumatism are frequent among the higher grades, but asthma is comparatively rare.

Ephemeral fevers are often observed, the temperature frequently running so alarmingly high that fatal results seem inevitable, when subsidence, often quite as sudden follows, in response to or even without simple remedies.

Heart-diseases are frequently encountered; deficient circulation being evidenced in the cyanosed hands and feet and blue lips so characteristic of low-grade imbeciles and idio-imbeciles, especially those of the Mongolian type.

The sluggish habits of defective children show themselves in frequent attacks of constipation, diarrhœa, dysentery, gastritis, and the various forms of indigestion. Merycism is very common among the lower grades, and these children are peculiarly liable to exanthematous diseases, due in a measure to inertia and imperfect circulation.

Eczema in its manifold forms is persistent, recurring ever and again and lingering sometimes for years in spite of treatment and care. Rupia, tinea, acne, alopecia, impetigo, urticaria, lichen, herpes, and erythema nodosum are noticed not infrequently. Herpes zoster is not common. Of adenoma sebaceum or "butterfly disease" of which but 21 cases so far are recorded, I have had 4 under my own care and have a personal knowledge of 3 others. (See chapter XIII.)

Ulcers, especially on legs, are frequent, obstinate and slow in responding to treatment. Gastric ulcers occur with boys, but rarely among girls.

Hemorrhoids, rare in the lower grades, are more frequent in the higher and middle grades of both sexes; this is true also of prolapse of the rectum and of hernia. Menstrual derangements are not common.

Defective vision is noticeable in fully 90 per cent. of the high and middle grades, and among the low grades there is much conjunctivitis, iritis, corneal ulcer, blepharitis, and photophobia. Tests and class work in the schools reveal a fair possession of the color-sense, and color-blindness is the exception rather than the rule.

Partial deafness is occasionally encountered; absolute deafness, uncommon among the idio-imbecile and the idiot classes, is found in the higher grades. Earache is a frequent complaint, as is also purulent otorrhea and otitis media, to which both sexes are subject. Hematoma auris I have found in 25 per cent. of boys, confined almost exclusively to the left ear, two cases only being double.

Adenoid growths are a fruitful source of speech-defect, in the high and middle grades, and early removal greatly facilitates training in articulation.

Nervous diseases, such as Friedreich's ataxia, syringomyelia, and hydromyelia which would seem to be allied to brain defect, are practically unknown; anterior poliomyelitis is occasional, but the nervous diseases most common are the cerebral palsies of childhood. Hysteria is peculiar to the high and middle grades, as is also meningitis, to which both girls and boys are subject.

Among the girls, neuralgias are common. Chorea is fairly rare, not being found at all among the lower grades, and in only about 5 per cent. of the higher. Epilepsy, confined almost exclusively to the imbecile and idio-imbecile classes, is rarely seen in the idiot.

Almost entire hebetude to pain is noticeable, many being able to endure the sewing-up of a wound or the amputation of a finger without flinching. In fact, they rather enjoy anything that brings them into notice and so gratifies their egotistic sense. Nostalgia is practically unknown, feeble-minded children adapting themselves easily to change of environment.

In hospital wards we encounter all sorts of anomalies, one seemingly at the very gate of the grave, with scarcely a pulsation or a breath, will suddenly revive and recuperate, whereas another, suc-

Case A.

Case B.

NEGROID TYPE.

PLATE XXXI.

cumbing to some light attack, passes without warning. In these latter cases the necropsy generally reveals tissues absolutely worthless —a poor make-up, which unable to resist, goes to pieces on the slightest provocation. Many die in early childhood because too feeble to resist any sudden attack; others, physiologically old, die of old age in early youth.

An interrogation frequently and eagerly put by anxious parents is: "Will there not be a change in my child in the seventh, or fourteenth, or twenty-first year? I thought he would outgrow his defect." To this there is but one answer! He who is born into this sad heritage, leaves hope behind. We cannot cure what is not disease, but defect, and that which the cradle rocks the spade will cover.

CHAPTER VII.

CRANIECTOMY AND ASEXUALIZATION.

CRANIECTOMY.

Craniectomy is a singular exception to many brilliant successes that have attended surgical demonstration of scientific theory. Studies in etiology and experiments, in treatment of microcephalic idiocy, developed a theory that possibly the premature closing of the fontanelle, and the ossification of the cranial sutures, had arrested the growth of the brain which, thus locked in a cell of bone, could no longer expand, nor attain to functional activity. The logical deduction from such reasoning was, that expansion would follow the reopening of the skull with consequent development of the brain, and thus the operation would prove an open door to future intelligence. Nor was this theory wholly without basis, for there had been cases showing unmistakable signs of pressure, the result either of accident or of an undoubted history of premature closure of the fontanelle; but these were rare exceptions, and certainly not cases of true microcephaly.

The first to put into practice the theory formulated, was Fuller, of Montreal, Canada, who in 1878 operated upon an idiot two years old, the only result claimed being some slight mental improvement, after temporary paralysis.

In the case of a second experiment made some years later by Lane in the United States, the patient died within fourteen hours after the operation.

During the year of 1890, investigations were pursued coincidentally in France, England, and America, by men all eminent in the profession—Lannelongue of Paris, Victor Horsley of London, and W. W. Keen of Philadelphia. Some 56 operations, by John Barlow, Boekel, Peau and others followed in rapid succession. Of these, 13 died, and for 24 only, of the 43 children who recovered, a very slight improvement was claimed.

Of 25 microcephalic idiots operated upon by Lannelongue, 1 died from the immediate effects, but for the others improvement in greater or less degree was claimed; one a mute, it was said, learned in a short time to talk, and another, four years old, ceased incessant crying and began to try to talk and to walk.

Lannelongue's methods of procedure were linear craniectomy and *craniectomie à lambeaux,* and he regarded the systematic training of the child subsequently, so essentially a part of the treatment, as to reserve his opinion until the patient had been for a satisfactory period under training.

Horsley's experience was evidently not encouraging, as he expressed himself to me some six years later as being no advocate of craniectomy, considering it an experiment of the past.

Keen in a talk before the Association of Medical Offices of American Institutions, at Elwyn in 1892, spoke of craniectomy as a most dangerous operation; of 50 cases coming under his observation, 25 per cent. had terminated fatally. This excessive mortality he ascribed to the fact that nearly all microcephals are poorly developed and of necessity feeble, with no resisting power. He told how he explained to parents that fully 1 in 4 died; that even if the child survived, there might be no improvement, the probabilities being, however, that there would be some moderate improvement—perhaps only after years; but that they must not expect the child to become anything like a normal adult. He further added: "In many cases where very great improvement has been reported, I think the report has been colored by the hopeful wish that a good many of us are apt to entertain—the wish has been father to the thought. In the cases I have operated on, in not one has there been a sudden improvement. There has been a gradual, slow, moderate improvement: at no time has it come by a great leap or jump."

Some three years later I requested Dr. Keen, at that time a member of the medical board of the Pennsylvania Training School, to examine some of our children at Elwyn with a view to operating, but he declined; and experience has since led him to modify even the very conservative views then expressed and to coincide with his colleagues, Bourneville, Horsley, Ireland, Shuttleworth, Beach, Cunningham, Telford-Smith and others in the opinion that it is the lack

of quality of brain that affects growth, and therefore it is the brain that moulds the skull—not the skull that cramps the brain.

Not only does skull capacity fail to be increased by the operation, but there is absolute danger of it being diminished by the contraction of fibrous cicatricial tissue; moreover examination most careful fails to reveal in the brains of microcephals the slightest evidence of compression. The brains are found not adhering to the membranes, but free and well separated, showing that the brain has determined the size of the cranium and the cranium has simply accommodated itself to it.

Sir George Humphrey gives as the result of his examination of nineteen microcephalic skulls: "There is nothing in the specimens to suggest that the deficiency in the development of the skull was the leading feature in the deformity and that the smallest of the bony cerebral envelopes exerted a compressing or dwarfing influence on the brain, or anything to give encouragement to the practice lately adopted, in some instances, of removal of a part of the bony case, with the idea of affording more space and freedom for the growth of the brain. In these, as in other instances of man and the lower animals, the brain-growth is the determining factor, and the skull grows upon and accommodates itself to the brain, whether the latter be large or small. This view is corroborated by the fact that, in the brains taken from several of the microcephalic skulls, the convolutions of the brain give no indication of compression, but are free, outstanding, and separated by well-marked sulci."

Professor Cunningham, of Trinity College, Dublin, after an exhaustive examination of two microcephalic brains, writes as follows:

"The view that the arrest in brain-development was due to a growth restriction, brought about by a failure on the part of the cranial cavity to expand to the required extent, is untenable, because it is now known that the early closure of the cranial sutures is by no means a distinguishing feature of the microcephalic skull. It is evident, from the condition of the two brains, that the arrest in growth has taken place at a period corresponding to the third or fourth month of fetal development, or, in other words, at a time when sutural closure is altogether out of the question, seeing that at this stage the ossification of the cranial bones has only advanced

CASE A.

AMERICAN INDIAN TYPE.

to a very small extent. It is not going too far to say that all anatomists of the present day who have studied the question have abandoned this view, and the tendency now is to consider cranial growth as being subsidiary to, and dependent upon, brain growth. Still, old theories die hard, and when they are proved to be erroneous it is well, for a time at least, to reiterate the evidence against them. This is all the more necessary in the present case, seeing that in recent years operative procedure has not only been proposed, but in several cases carried out, with a view of relieving the supposed cranial restraint upon the growth of the microcephalic brain. We have no hesitation in saying that it would be quite as rational a proceeding to operate on the head of an ape in the hope of producing an access of brain-growth as upon the head of a recent typical case of microcephaly."

Shuttleworth says: "I think we may conclude that craniectomy is but rarely, if ever, of permanent benefit in cases of ordinary congenital microcephalus in which the original defect is in the brain, not in the bone; but that it may possibly do good by relieving pressure symptoms and favoring brain development where premature synostosis is the result of osseous hypertrophy from constitutional causes. The diagnosis of appropriate cases is, however, beset with difficulties."

Fletcher Beach says: "I do not see how grave lesions of the brain, which are often present in these cases, can be benefited by craniectomy."

Telford Smith says: "The weight of evidence so far is, I think, against the operation of craniectomy, as judged not only from the facts learned from an examination of microcephalic brains, microcephalic skulls, and of skulls in which the operation has been performed, but also as judged from the actual mental and physical results obtained in even those cases where all the circumstances were favorable."

Bourneville affirms that not only is there no expansion of the cavity of the cranium, but that it is encroached on by exuberance of bony matter thrown out to repair the breaches made by the surgeon. In a paper presented before the French Academy, showing results of craniectomy upon idiot children at Bicêtre, he condemns the prac-

tice *in toto.* While viewing with him in the Musée Anatomo-pathologique, at Bicêtre, some 350 skulls—mainly idiot, many microcephalic—that had been craniectomized, he pointed out to me the absence of any signs of premature ossification; indeed the amount of space gained by the operation would have afforded very inconsiderable opportunity for expansion, whatever the capacity might have been. As Monsieur characteristically put it: "It might do for the American idiot, but for the French, *c'est impossible!*"

I have yet to see or to learn of a case that has been sufficiently benefited to warrant the discomfort, not to speak of the danger, incident to the operation; and even should the risk to life be, through advance in surgery, reduced to a minimum, I should still unhesitatingly advise against it. For the theory of pressure acting as a dwarfing process, having been so disproved through data collected from observation of the living subject, as well as from examinations of both brains and skulls, is no longer entertained by reputable surgeons and alienists.

While scientists were investigating, experimenting and cautiously rejecting all evidence that failed to verify, quacks and charlatans of all sorts took up the cry and stimulated by the daily press and the novelist, all eager for sensation, the cutting open of heads soon became a fad. In the Strand Magazine a story with the sensational title "Creating a Mind" was read from ocean to ocean. Later "A Wonderful Surgical Operation," was the title of an article in one of the leading magazines of America; the opening sentence, "Can you think of an operation that would create a mind?" was enough in itself to awaken a hopeless hope in the hearts of sorrowing parents, but it goes on to say: "The patient was a child about one year old, of good parentage and of healthy bodily growth, aside from the fact that its skull was that of a new-born child, and it had hardened and solidified into that shape and size. The soft spot was not there, and the sutures or seams of the skull had grown fast and solid, so that the brain within was cramped and compressed by its unyielding bony covering. The body could grow—did grow—but the poor little compressed brain, the director of the intelligent and voluntary actions of the body, was kept at its first estate. Even more than this, the struggle within its bony cage made a pressure which caused

distortion, and aimless or unmeaning movement. The arm and leg turned in, in that helpless pathetic way that tells of imbecility." Then follows an account of the operation, and the statement that in three days the child showed improved mentality; in eight days the improvement had become a certainty, and from an "it" it had been transformed into a "he," and "the child is now a child, who acts and thinks like other children . . . and makes glad the hearts of those who love him." A very pretty romance, but absolutely misleading, worthless, and untrue!

Early in my experience, my chief sent for me one morning and, placing in my hands a paper containing a sensational account of an operation performed two days previous in a hospital in a neighboring city, told me to follow up the case and report to him. The child was said to be a microcephalic idiot aged five years. Directly after the operation (the craniectomy having been both longitudinal and transverse) the child had spoken—so the account said—and reached for the nurse's glasses. After waiting for over two hours in the hospital and being transferred from one interne to another, without gleaning any information, I finally reached the surgeon who had performed the operation, who replied most brusquely to my inquiries: "There is nothing to tell. The craniectomy was performed and the child died within eight hours. What's that? Spoke and reached after the nurse's glasses! Well that's . . .! He did no such thing; nothing but cry, and in his struggles knocked off the glasses. Good morning!"

One of the most skillful surgeons in Philadelphia, one of world-wide reputation, related to me the following:

"A child of nine years was brought to me. He had a good, large head, but it was asymmetric; there was faulty development in the teeth, eye-sight, and general growth of the body, and he was, undoubtedly, an imbecile. I declined to operate, telling the mother that surgery offered nothing to such a child. 'But what of all the marvelous cures I hear Dr. ——— has made?' she replied. 'Two hundred operations without a death, and with most extraordinary results. He assured us that if we would allow him to operate on our boy it would be a perfect revelation to us, and cited one particular case at Elwyn of an idiot girl of fifteen, whom he had operated upon, and who became very nearly normal.'"

The facts regarding the Elwyn case are these: the subject, a moral imbecile of high grade, handsome and well formed physically, quite bright mentally, had made rapid progress in school, in handwork and in household service; but with perverted moral sense, quick to choose evil and to refuse good, was disobedient, obstinate, passionate, untruthful, and a nymphomaniac. The mother, during a vacation, had taken her to a surgeon whose fad was craniectomy, and he had operated. Why, I do not know, for there was not the slightest evidence of microcephalus or of pressure. The case misrepresented—whether wilfully or not—as one of profound idiocy, naturally occasioned misconception. The girl even in the hospital ward was the subject of comment and of idle curiosity, and later, the opinion of a great artist, to whom she was exhibited, that the result was little short of miraculous, was largely quoted as confirmatory of cure. In reality what he saw was just what she was both before and after the operation—no more and no less.

Murdoch reports three cases between the ages of six and twelve, not microcephalic nor with any evidence of injury to the skull, where there was slight improvement after craniectomy, but they remain hopelessly imbecile and "the improvement is in no sense greater than is to be expected from systematic training of any imbecile children of low grade."

Carson, of Syracuse, reporting three children craniectomized, says: "Our observation of these cases has not been of a character to lend encouragement to the operation. We have, therefore, no faith whatever in the operation of craniectomy, and in the wonderfully improved conditions which are said to result from it, except, possibly, in well-selected cases of microcephalus, in very young subjects, where the fontanels closed and the sutures ossified prematurely. But no such cases have come under our observation."

Voisin says of twenty cases that the much-vaunted intellectual ameliorations did not follow.

In some dozen cases operated upon before coming to me, and under my observation now for many years, I note no improvement that can be traced to the operation; in fact they are inferior in mentality to many of their grade.

CASE A.

CASE B.

CASE C.

CASE D.

MONGOLIAN TYPE.

ASEXUALIZATION.

The consideration of treatment naturally includes that of prevention. In fact it was to the prevention of defect rather than to its treatment that ancient peoples gave attention. Esteeming a maimed existence one accursed of the gods, recognizing the evil it must entail, and holding the preservation of the mere individual secondary to that of the integrity of the race, they permitted their defectives to perish, and in so doing did but follow natural law—imperfect seeds and buds dwindle and die, defective fruit falls from the bough and weaklings of the flock perish. We ourselves choose and set apart with care the animals best fitted for breeding, and by castration render more docile because less passionate, the beasts of burden who, because harmless, may rove at will unrestrained to mingle with the common herd. Yet we do not exercise the same discrimination in race culture. To the ignorant and to the foolish equally with the wise and the capable, is permitted the sacred office of the life-giver, and with rare exceptions the law gives sanction without protest; apparently indifferent to results, evidenced not alone in the rapid increase of defect and disease, but also in the general nervous excitability which is characteristic of the age. It is the lack of patient reposeful power—the inability to meet or to sustain crises—that is the true cause of the frequency of crime desolating homes; divorces, murders, and suicides being too often the direct outcome of neurotic heredity.

I know of no restraining law in England or on the continent of Europe; and but few of our states have legislated upon the subject. Of these latter, Connecticut is foremost and most explicit in a prohibitory law, approved July 4, 1895: "No man and woman either of whom is epileptic, or imbecile, or feeble-minded, shall inter-marry, or live together as husband and wife when the woman is under forty-five years of age. Any person violating or attempting to violate any of the provisions of this section, shall be imprisoned in the state prison not less than three years."

"Every man who shall carnally know any female under the age of forty-five years who is epileptic, imbecile, or feeble-minded, or pauper, shall be imprisoned in the state prison not less than three years. Every man who is epileptic who shall carnally know any

female under the age of forty-five years, and every female under the age of forty-five years who shall consent to be carnally known by any man who is epileptic, imbecile, or feeble-minded, shall be imprisoned in the state prison not less than three years."

This undoubtedly shows an appreciation of the necessity for protection, but the question arises: Is this a protection that protects? For the law-abiding, contemplating marriage; or to those irresponsibles, fortunate in the possession of guardians, it is comprehensive enough to prove a check entire; but the waifs and strays, the vicious and lawless, and above all the unrecognized, unsuspected defectives in all ranks of society, it is powerless to reach; and it is through these, that the careful work of these faithful law-makers is undone, and increase goes on; moreover history shows that among any people in every age wherever stringent marriage laws are enforced, the inevitable result has been free-love, concupiscence and prostitution. It is impossible to legislate for conscience at the best, and in dealing with the low and the bestial, with the ignorant and the weak, the silly and the irresponsible with utter incapacity to comprehend any law but that of self-will, there is nothing to convert or to convince, for the moral sense is not there to appeal to.

For these, and against these—festering sores in the life of society—the only protection is that which the surgeon gives; and slowly and reluctantly society is coming to recognize this fact, and that which was spoken of behind closed doors, already begins to be the subject of open discussion and to appear in reputable journals of the day. It is urged, not only as a direct means of preventing that direct transmission of defect, which as statistics prove is a law governing the cohabitation of defectives, but because in large communities where they can best be trained and find truest happiness and success in life, association of the sexes both in labor and in amusements, contributes to the comfort and well-being of all. Now such association of large numbers of irresponsible "children" with sexual impulses exaggerated, could never be, without such safe-guard; which in freeing them from the domination of sexual appetite, would free them also from the necessity of perpetual surveillance and permit a certain amount of liberty which every individual, in any condition of life, craves as essential to his happiness.

It has been advanced that the fear of consequences is the chief, indeed, often the only check upon the vicious; and that to remove this is to offer a premium for vice, and an open door to indiscriminate intercourse, if not to absolute prostitution. However true this may be with the adult who seeks through this, an easy path to transgression, and for whom asexualization does not allay desire; there is sufficient evidence to show that the operation performed before the critical period results very differently, and that the child thus treated passes simply and unconsciously into that placidity, freedom from excitement, and consequent content with the ordinary pursuits of life that marks advanced age. Even lasciviousness, vulgarity and obscenity would become so modified that general oversight of numbers would have to concern itself chiefly with checking misdemeanors and improprieties, whereas now it must forever forestall opportunities for immoralities.

Let asexualization be once legalized, not as penalty for crime but a remedial measure preventing crime and tending to the future comfort and happiness of the defective; let the practice once become common for young children immediately upon being adjudged defective by competent authorities properly appointed, and the public mind will accept it as a matter of course in dealing with defectives; and as an effective means of race preservation it will come to be regarded just as is quarantine—simply a protection against ill. The fact that the practice has been perverted to selfish and vicious uses, does not affect the argument that the experience of many peoples in many ages has compelled a resort to it to preserve order in special social conditions of the times. For this reason it was sanctioned in the kingdom of Lydia, and in all polygamous countries eunuchs were a necessity as guards to women, and to preserve the order of the harem. The Greeks and Romans also had their eunuchs, and there is mention of these in Scripture. In various countries, in both ancient and modern times, among Orientals, Aztecs, and Australians, there are traces of the practice having a religious significance. In Russia there is a sect known as the Skoptzies—castrated, calling themselves "White Doves," who practice asexualization as a means to the attainment of a life of social purity. These doubtless, as do many fanatics, founding their belief upon some one portion of Scrip-

ture may find their warrant in that single allusion to those who are "eunuchs for the Kingdom of Heaven's sake"; St. Matthew, xix. 12.

Following close upon open discussion an effort was made to arrive at a consensus and an authoritative expression of opinion. In this Pennsylvania leads, in 1897, in a circular emanating from Elwyn, addressed to the heads of various institutions for mental defectives both here and abroad, containing the following queries:

"1. In what proportion of the inmates of your institution do you consider procreation advisable?

"2. In what proportion of the inmates of your institution do you consider procreation possible?

"3. What would be the probable effect of asexualization upon their mental and moral conditions?

"4. What effect upon their physical condition?

"5. What operation would you advise upon a male—removal of the testes, ligation of the cord, or ligation of the vas deferens?

"6. What operation would you advise upon females?

"7. At what age would the operation be most effective?

"8. Have you had practical clinical experience in this matter?

"9. Should a State law be enacted to legalize the operation? If so, what would you suggest in regard to such a law?"

Of the 61 institutions addressed—25 American and 36 foreign, including those of Great Britain, France, Germany, Austria, Switzerland, Russia, Finland, and the Scandinavian countries, but 12 responded: 9 American, 1 German, 1 Scotch, and 1 English; and of these only 9 replies were definitive.

While all agree that procreation is not advisable—that defect must breed defect—there is evident cautiousness in advocating asexualization in all grades, but a consensus as to the necessity being greatest for those of high grade. The first question is unanimously answered "none"; the second gives an average of 80 per cent. The non-committal tenor of the replies to the third and fourth questions as to mental, moral, and physical effects, evidences the limited opportunities that exist for collecting sufficient data. The fifth, sixth, and seventh replies, as to the *modus operandi* and the proper age, are more explicit, the majority favoring testiectomy in the male and oöphorectomy in the female, at or before the age of puberty.

To question eight, five state frankly that they have had no practical experience, and the others give rather evasive answers.

To the ninth—the question of seeking legislative aid—three-fourths give unqualified approval, two see no necessity, and one is doubtful of success.

The limited response, especially from foreign countries, would indicate either timidity in expression of opinion, or that ultra-conservatism that is often the safe-guarding of all advance movements; nevertheless it is most fitting that this preparation for carrying out principles which science and experience alike dictate for the amelioration of imbecility, should have been accomplished before the close of the century that had witnessed so much, both of the initiation and of the progress of the work among mental defectives. Almost a decade of experience since that circular was issued has tended to emphasize the subject as well as to broaden the views of those called to consider it, so as to encourage the hope that it yet may receive the seal of the law.

The first step toward securing legislative authorization was taken in 1901, when the subject was thus presented:

To the Members of the Senate and House of Representatives, Harrisburg, Pa.

Gentlemen: The following are some points which you may be able to use in considering the "Bill for the Prevention of Idiocy," which was brought before the notice of the Law and Order Committee, and reported favorably by them.

The very serious importance of this measure, not only for the present management and treatment of this unfortunate class of individuals, but for the prevention of their increase in the community, is patent to everyone who has carefully studied the subject; it should therefore be thoroughly considered in the spirit of seriousness to which it is entitled. It is a measure first for the good of the public; second, for the benefit of the individual. Everyone who has paid thoughtful attention to this question knows how largely the element of heredity enters into the complex problems of degeneracy. While we cannot lessen the number of already existing idiots, we can do something to protect our successors from the increasing volume of defectives. It must be remembered that these idiots must always

be dependents; they can never be self-supporting, but must always be the wards of the State and cared for in her almshouses and other institutions. The State therefore has a right to act in place of the parent, and also to take measures to prevent their propagation.

As regards the individual: The effect of lessening sexual desire will certainly render these individuals more docile, more tractable, and will remove a powerful incentive to evil, both as regards themselves and the general public. Having no restraining will power, it cannot be expected that they will restrain themselves; they will act naturally in accord with their abnormal desires and appetites at any moment. One who is unacquainted with the class cannot understand the degree to which this vileness extends, or the evil that follows from it. If it is argued that the operation for unsexing makes them less vigorous or manly, it should be remembered as stated above, that this class must necessarily always be helpless dependants and non-supporting. A gelding or ox loses nothing but becomes in every respect more docile, more useful, and better fitted for service.

In regard to the operation itself. It is not at all a serious one, and in the bill you will note that discretion as to the operation to be performed is left to the surgeon. If it seems desirable that the testicles remain for the sake of appearances, the severing of the duct or vas deferens is in itself sufficient to secure sterility, and if the operation is performed in the boy before semen commences to be secreted, the testicles will merely diminish in size, and become inactive. This operation is a very trivial one; it has been performed a great many times by surgeons often without ether and without pain to the individual.

It is very important that you should carefully separate from this subject the question of castration of criminals, as it is highly essential that the two matters be kept entirely distinct. This treatment as to idiots is absolutely an independent one, and should not be viewed in any sense as a punishment, but as a help to the individual in controlling himself, and in his relations to the public.

The idiot girl even should she not herself seek cohabitation, is at the mercy of every villain, and even when at the lowest of the scale, without any intelligence whatsoever, may produce offspring that will be necessarily a curse to society.

With great respect, we have the honor to be,

Very truly yours,

DE FOREST WILLARD, M.D.,
Clin. Prof. Orth. Surg. University of Penna.
Surg. Presbyterian Hospital.
SAMUEL D. RISLEY, M. D.,
Attending Surg. Wills Eye Hospital.
MARTIN W. BARR, M.D.,
Chief. Phys. Penna. Training School for Feeble Minded, Elwyn, Pa.

This appeal was approved by the following Act of Assembly:

WHEREAS: Heredity plays a most important part in the transmission of idiocy and imbecility;

THEREFORE, Be it enacted by the Senate and House of Representatives of the State of Pennsylvania that on the first day of July after the passage of this bill, it shall be compulsory for each and every institution in the state entrusted with the care of idiots and imbecile children to appoint upon its staff at least one skilled neurologist and one skilled surgeon of recognized ability, whose duty it shall be in conjunction with the chief physician of the institution to examine the mental and physical condition of the inmates.

If in the judgment of this committee of experts and the board of trustees procreation is inadvisable, and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeon to perform such operation for the prevention of procreation as shall be decided safest and most effective, but this operation shall not be performed except in cases that have been pronounced non-improvable.

After passing both Houses, this Act, returned by the Governor for the correction of some trifling technicality, was unfortunately lost and thus failed to become a law.

Meanwhile multiplied instances are proving the necessity of some means of prevention.

Dr. F. Hoyt Pilcher, of the Institution for Feeble Minded Children at Winfield, Kansas, says: "Time has fully justified the wisdom of this departure from all other established methods of treating the base and abnormal conditions so common to an imbecile mind."

Much distressed by debasing habits rife among the children of his institution, and having exhausted every means of reformation through discipline, he, after consultation, castrated 58 boys, with a resulting gain in almost every case of marked improvement both mental and physical. His board of trustees sustains his action, thus:

"A great deal has been said in the political press and medical journals of our country about the unsexing of . . . boys by Superintendent Pilcher, the political papers censuring, and the medical journals sustaining him. As all forward steps have brought criticism to the person who had the courage to take them, so this humane act has brought criticism to Doctor Pilcher. All that would be necessary to convince those most horrified by this act of the wisdom of it, would be to have known the boys before and after the operation. Those who are now criticizing Doctor Pilcher will, in a few years, be talking of erecting a monument to his memory."

Dr. Everett Flood, superintendent of the Hospital for Epileptics at Palmer, Mass., reports 26 cases in which asexualization was performed, some being circumcised at the same time, with no bad results. With 24 the cause for operating was epilepsy and persistent masturbation. One-half were under fourteen, two over twenty, and the remainder about fifteen years old, the mental and moral condition being good in 2, fair in 9, but poor in the others. Observation for some years after operation, noted mental condition improved in only 3 cases, and moral condition in only 4—2 kleptomaniacs reformed, one who was salacious improved, and one who was solitary acquired a more social disposition. The temper was improved in all but 4 cases. The sexual appetite seemed to disappear in all but 2 cases, and appeared in these only periodically. The effect upon the epileptics was favorable; with some the attacks ceasing altogether or returning, as in a single case, after immunity of two years.

Pfister reports 116 women operated upon. The menopause followed in 94.8 per cent. and *molimen menstruale* in 30 per cent. Sexual desire was extinguished in 52 per cent.; diminished in 30 per cent.; undiminished in 26 per cent. Atrophy of the uterus was constant, but of the vagina and vulva, less frequent. Atrophy of the mammary gland was noted in 29 women. The tendency to

CASE E.

MONGOLIAN TYPE.

obesity was increased. For some time after the operation, the disposition was changed for the worse, but only in exceptional cases was the change permanent. The causes for operation were myoma, dysmenorrhèa, hysteria and hystero-epilepsy; cases suffering from the first named receiving most benefit. Results show 18 improved, and 87 cured by the operation. My own experience, although limited, has been decidedly favorable; 3 cases of oöphorectomy and 3 of testiectomy have resulted in improvement mental, moral, and physical—especially marked in the boys.

My preference in operation inclines to oöphorectomy in the female and testiectomy in the male, although for a time the temperature does run alarmingly low. If, however, there is objection to the latter, an operation harmless and almost painless is vasectomy, which is less heroic and is said to be quite as effective as castration. Observation shows that where asexualization is performed late in life, sexual desire is not abated, whereas it is practically lost if the operation takes place in early childhood. The child then grows stout and acquires a large frame. There is no hair on the pubes or the face, the cheeks become round and prominent, and the chin is apt to be double. Boys come to resemble immense women. The singing voice also is that of a woman until puberty is reached, when it is found to be an octave lower.

CHAPTER VIII.

CRETINISM AND MYXŒDEMA.

CRETINISM.

CRETINISM is so closely allied to idiocy that its history has naturally been considered with it in Chapter II.

Dating from remote ag[illegible] it may be traced through its chief associate goitre; thus [illegible]ys: "Quis tumidum guttur miratur in Alpibus," and V[illegible] guttur homini tumescit præsertium apud agricolas Italiæ [illegible]lpinos." Pliny and Strabo make similar reference, and thes[illegible]us people are evidently the same class as the present cret[illegible]acelsus associates cretinism with idiocy thus: "All ye goit[illegible] are more ready for foolishness than for cleverness," and turn[illegible] 'Strumosi raro sunt sapientes; qui et cerebrum ex mineralibus s[illegible]n habet liquorem sen nutrimentum; quia illud imperfectum quoqu[illegible] et immaturum ad cerebrum ascendit, inde destriut partem memo[illegible] et quoque surdi sunt; quia humor mineralis occludit ames,. sed [illegible]gua et naso et oculis non nocet."

The origin of the word cretinism is uncertain. Fodéré says that it is derived from *chrétien*—christian—growing out of a popular belief that the cretin, because of his happy disposition, is blessed of heaven, a sentiment akin to the veneration of the idiot as a supernatural being. Others suggest that, descriptive of the peculiar complexion, it is possibly derived from the Latin *creta,* chalk, found also in the German *Kreidling* from their *Kreide,* chalk.)

Indeed appellations, significant of speech or appearance, are frequent; such as *lallen,* alluding to the peculiar voice; *trotteln* in Austria, *talken* in the Tyrol, *totteln* in Salzburg, and *fexen* in Wurtemberg. They are also spoken of by some writers as *capots, caffos,* or *cagots,* and there are various local appellations—the *gavas,* and *semphiaggine* of Italy and *bovos* of South America. In Vallais cretins are divided into three classes—the highest *gauch,* the middle grade *trissel,* and the lowest *tschengen.*

A comparison of the terms used in various countries may show the derivation of the word cretin, from the Latin *creatur,* and its use rather that of compassion or endearing pity, such as is expressed in the word *cretira* of the Romansch and *creatura,* applied universally, in Spanish countries, to infants or to young children. It is singular to note that the Germans find in this Latin *creatur* a synonym for their *geschöpf,* and indeed use these interchangeably in speaking of cretins, which word they have also adopted. Some writers, however, consider that it is applied in yet another sense descriptive of childishness or stupidity. This idea is confirmed in the *fous* and *foulitre* of Savoy and Piedmont, and in the *dotteln* and *totolas* of Styria and Italy, and of the *tontos* of South America.

Cretinism is a phase of idiocy or imbecility, either endemic or sporadic, characterized by stunted growth,—the usual height from three to four feet, never exceeding five; short, thick neck; large misshapen head; hair coarse and thick; tawny skin—usually coarse and wrinkled; eyes small and set far apart, with puffy lids—strabismus not infrequent; cheeks swollen, often showing red patches; broad flat nose, distended nostrils; thick lips, dribbling viscid saliva; large protruding tongue, with papillæ markedly hypertrophied; teeth imperfect, usually much decayed. The cranium is brachycephalic—vertex and occiput flattened—and ears malformed. The limbs are short and misshapen, and the gait awkward, waddling, and uncertain. Hands large and spade-like, with flat and stumpy fingers. Usually there is a lumbar lordosis; the abdomen is tumid, large, and pendulous, as are the mammæ in the female and the external genitals in the male. The sexual functions are often abnormally increased in both sexes, but impotence may exist. Puberty is delayed often beyond the twenty-first year; menstruation is scanty, and masturbation frequent in both sexes. The circulation is sluggish, the pulse slow, respiration diminished and temperature subnormal. The mentality may vary, but cretins are rarely brighter than low-grade imbeciles; to this there are, of course, rare exceptions. (See Chapter XI. Idiots Savants.) Speech is generally very defective, or entirely absent. In disposition, cretins are very gentle and affectionate, but may, when roused, become violent. Their vitality is low, and as a rule they do not live beyond the age of thirty.

The essential defect of the cretin, general and pronounced, is the atrophy or entire absence of the thyroid gland with or without fatty tumors in the supraclavicular fossæ; or there may be swelling, and the gland increasing in size may develop into goitre.

The autopsy reveals the walls of the vesicles infiltrated with embryonic tissue, and a condition of chronic thyroiditis is evident. The connective tissue is increased throughout the body, and the fat also. The sweat-glands are obstructed by epithelial cells, and both skin and blood exhibit the presence of much mucin. Whatever variations the pathology of cretinism may reveal, one fact is constant, that the thyroid gland is functionless and its secretions, therefore, lost to the system. Although the office of this secretion is still unknown, it is a common fact well-worthy of note, that cretinism and myxœdema are both traceable to this loss and so well-established is this fact that I have long inclined to the opinion that these conditions are almost identical, there being a difference of degree rather than in kind.

Wolfstein says: "None of the internal secretions, the seminal fluid excepted, ranks the thyroid in potency." Schiff claims, that the nutrition of the nervous system is largely dependent upon it, and Horsley considers it has an influence in the formation of the blood.

Dr. Kóstl, of Austria, thus describes the cretin: "Man does with difficulty recognize in the idiot not a fellow being, but rather a slimy beast or at most a monkey. He turns away from him with fear, loathing, and horror, rather than feeling the respect and self-denying love which human dignity and human suffering induce and need. Nothing which could remind of the beauty and harmony of the creature power permeates the form. It is certainly the same stuff we are made of; the different parts and members are there, of which our body is constituted, but they have remained in a lower stage of development, have wasted, been deformed, disfigured; as it were, thrown together by chance; mechanically chained to each other without proportion; an animal made of human matter, yet below the animal."

Endemic cretinism is found in almost every part of the world, but occurs with greatest frequency in Europe; it is seen occasionally in Africa, and even in America. In Europe it is met with in the

CASE G. CASE C. CASE D.

CASE A. CASE B.

CRANIECTOMY.

mountains and valleys of Switzerland—the Alps, the Jura, and the Vosges, and in the neighborhood of Styria, the Tyrol and Salzburg, in Savoy, Piedmont, Venetia, Lombardy, and the northern slope of the Apennines.

It is found in the Austro-Hungarian empire, and in Germany, and in Spain it is quite common on the southern slope of the Pyrenees, but is less frequent in the valleys of Auvergne, France, and is seen only occasionally in Belgium. In Great Britain a few cases are found: in Scotland, on the east side of Arran and on the east coast of Fife; and in England in the dales between Yorkshire and Lancashire—at one time it existed in Somerset, but is now extinct there. In Sweden, Denmark, and Norway endemic cretinism does not exist. In Russia it is found in the valley of Ojat and also in Siberia. In Asia the endemic form of cretinism is seen in the Himalaya mountain region, in some of the provinces of Cochin-China, Burmah, and in the north of China proper. It is also found in Madagascar. In South America the disease is known to occur along the course of the Magdalena river, and in North America it has been seen in California and in certain parts of Vermont and Massachusetts.

This widespread association of cretinism with localities, essentially similar although in countries remote—the slopes of high mountain ranges, close shut in valleys or low-lying marshy regions—in all of which, qualities deleterious or disadvantageous impregnate air and water tending to establish unhealthy conditions, has led to a general belief in the influences, climatic and geologic, of such localities as a primary cause in the production of endemic cretinism; a cause which the intermingling and quadrupling of inherited weaknesses—a natural result of isolated communities—has intensified.

True there are many sporadic cases not traceable to such influences, approximating in all essential features very closely to endemic cretinism, and it is quite possible that various nervous conditions might so commingle and unite through successive generations as to create influences akin to those of locality, producing similar but not identical results. The isolated examples of cretinism that are now found in this country and in England, can hardly be called true cretinism, as lacking its intensity of coarseness and stupidity. These are, therefore, better classed as demi-cretins, or cretinoids.

Although Plater, Forest, Simler, Wagner and others had given descriptions of the cretin, more or less voluminous, it was quite late in the eighteenth century before physicians began to study conditions. Troxler says: "The priests of all classes, the good Samaritans as well as the ambitious Levites of the theological faculty, the pedagogues and diplomats, and particularly the farmers of our 22 districts from A to Z, pass by the cretin because they are accustomed to the sight and are weaned from pity."

Wolfgang Höfer, court physician in Vienna, 1675, was the first to give a scientific disquisition cretinism; later the efforts of Guggenbühl, 1842, reduced theory to practice. The work of the Abendberg was not only to ameliorate conditions, but to demonstrate needs, and following close upon this demonstration, came experiments in treatment.

To Schiff it occurred that the transplanting of the thyroid gland entire from some animal might restore lost function; this not bringing the success expected, various experiments were made by Victor Horsley, Murray Howitz, Hector MacKenzie and others, and the subcutaneous injection of the thyroid juice was tried with better results. Subsequently the administration of doses of the raw gland itself, preferably that of sheep, threw fresh light upon the subject. The patient thus fed began to grow taller, the eyes lightened and widened, the lips more approaching the normal restrained the tongue within the mouth, new teeth appeared, the complexion cleared, the abdomen receded, the hair became finer, and with approach to normal physical conditions, the mind brightened and the child became gradually a more intelligent being.

This success led to modifications in method of administering the remedy, the dried extract being now usually given in tabloid form. To prevent unpleasant effects, the dose should be regulated in accordance with each case, which must be studied individually by a physician, as over doses give rise to alarming symptoms—rise of temperature, rapid pulse, diarrhœa, emaciation, faintness, and even fatal collapse. The treatment must be perpetual, otherwise relapses will occur. Beginning with one grain daily the dose is gradually increased to six grains, reducing as improvement becomes permanent.

MYXŒDEMA.

Myxœdema is a constitutional affection due to atrophy of the thyroid gland, and infiltration of the subdermal tissues with a mucin-like substance, characterized by slow but steady increase of the bulk of the entire body, swelling of the skin—which does not pit on pressure—show speech, irritability, marked mental deterioration, with delusions and suspicions bordering on insanity, obstinacy, and not infrequently violence. The manifestations of myxœdema resemble those of cretinism, to which it is closely allied. In the former, however, the symptoms are much more pronounced, although there are present the same chalky complexion, with the reddish patches on the cheeks, the swollen eyelids, broad flat nose, large mouth, thickened lips, dry brittle hair, and swollen hands and feet.

Myxœdema, first described by Sir William Gull, in 1873, has been variously elaborated since by Ord, Charcot, Horsley, Virchow and others and summed up in an exhaustive report, 1888, of a committee of the Clinical Society of London, thus: "There is strong evidence that myxœdema, sporadic cretinism, endemic cretinism, cachexia, strumipriva, and the operative myxœdema of animals, are species of one genus, and that the one pathological fact common to all these conditions is the occurrence of morbid processes, involving destruction of the thyroid gland."

The diagnosis can generally be made without difficulty. Occasionally, however, it may be confounded with the adiposis dolorosa of Dercum, or with akromegaly.

The prognosis is unfavorable, although there may be possibility of amelioration. Death may result from the malady itself, or more frequently, from some intercurrent disease, such as tuberculosis, brain or kidney trouble.

Post-mortem examination shows the thyroid gland atrophied or much diminished in size, or it may have degenerated into a fibrous mass. Increase of mucin is noted and always an excessive deposit of subcutaneous fat.

The treatment is the same as in cretinism—the dried extract of the thyroid gland, preferably in tabloid form.

CHAPTER IX.

MICROCEPHALUS AND HYDROCEPHALUS.

MICROCEPHALUS.

AMONG the varied forms of cranial abnormality, microcephalus is as interesting as it is rare. Not alone because of the peculiar shape and size of the head, but bec[illegible]he problem that physiology and psychology tog[illegible] hav[illegible]lve, viz., the relation of size to capacity, or the bea[illegible]al size of the brain has upon mental power.

While there is abundant p[illegible]he head of a typical idiot is generally smaller than a normal [illegible]n, and although there is an established minimum (Gall says 13 [illegible]hes in circumference) below which idiocy must of necessity exist it yet remains to be proven that the mere size of the head, except in the extremes of microcephalus and hydrocephalus, gives absolute or definite indication of capacity or of intelligence. Esquirol, Pritchard, and Jovill unite in the opinion that: "No constant relation exists between the general development of the cranium and the degree of intelligence." Voisin on the contrary gives a regular scale of direct relation, according to which, head circumference from 18 to 18.5 inches, though small, may permit of intellectual processes; a circumference from 14 to 17 inches is too small for ordinary intelligence, while 11 to 13 inches is the limit where idiocy must necessarily begin.

Phrenologists and evolutionists have each in turn, with about equal success, seized upon microcephalus in order to prove their favorite theories. The failure of craniectomy in its effort to bring about the growth of a brain locked in an osseous cavity, might also go to disprove much that phrenology would claim. Gratiolet refutes the theories of the evolutionists by noting the difference in convolutions and in parallel fissures, in comparing the brain of an ape with that of a microcephal; showing that even "in the depth of his degradation, the brain of the microcephal presents human characters often less voluminous and less convoluted than those of

the orang-outang or the chimpanzee. They do not become identical; the microcephal however low he may be, is not a beast, but a diminished man." This is further emphasized by Giacomini in his larger monograph—the most complete, says Dr. Ireland, in any language: "Microcephaly cannot be utilized in favor of the theory of descent, for it represents no historical period in the development of man."

In one of my cases, the resemblance to a monkey in climbing, leaping, and general movements, as well as in mischievous habits and powers of imitation, is quite as remarkable as that of the goose, the sheep, the bird, and the rabbit-man reported by Lombroso. Yet, while possessing human affections and emotions, he is also so far below the ape in mental powers—as evinced in the ape's capacity for self-help and self-protection—that I am inclined to regard the approximation as simply a freak of nature, such as one meets in the orchid, the *dionæa muscipula,* and other forms of plant life. One can, however, readily see how the Darwinian theory has caused attention to be directed to this special form of idiocy.

Regarding brain weights, Ireland in his exhaustive chapter on microcephalus has gathered some valuable data. Thus he finds Sander reporting as the lightest on record, a microcephalic brain weighing 170 gm.—about 6 oz., the heaviest on record being that of Turgenieff, the Russian novelist, which weighed 71 oz.; Cuvier's brain weighed 58.3 oz.; Napoleon's, 53 oz., and Gambetta's, 40.9 oz.

While comparing these with the normal average brain weight—man from 40 to 52.5 oz., and woman 35 to 37.5 oz.—we yet are not prepared to insist that weight of brain does always tend to produce weighty intellect, as it is certain that some very heavy brains have been associated with what is known as heavy dullness.

In the interesting comparison of microcephals which Ireland cites from Cardona of Milan, we find excellent proof that neither size nor weight necessarily sets the limit of intelligence.

Antonia Grandoni, aged forty-one years, height 52 inches, and weighing 66 pounds, although an imbecile, was one of the brightest microcephals known—sight good, hearing quick, taste and smell exquisite, with excellent memory for persons, places, and past events. Her sense of time and rhythm must have been good, as she sang,

played well on the cymbals, and was a graceful dancer. Her head measurements taken during life were: External circumference, 15 inches; antero-posterior diameter, 5 inches 4 lines; and biparietal, 7 inches 10 lines.

The skull of Cioccio, measuring 13 inches 4 lines external circumference; antero-posterior diameter 4 inches 3 lines; biparietal 3 inches 10 lines—showed on the other hand, a brain larger than Grandoni's; yet he was a profound apathetic idiot. In comparison with eleven other microcephals, the weights of whose brains ranged from 10 to 20 ounces, not one of these equalled in intelligence Grandoni, whose brain weighed also 10 ounces. A comparison of the heads of normal people, giving similar results, is interesting as showing the parallel lines of genius and imbecility, for there are not lacking examples of talent and intellect associated with crania below the average normal. Such were Descartes, Schuman, Donizetti, and Shelley.

Measurements of the skull, recently discovered during the restoration of a church in Hannover, of the philosopher Leibnitz are interesting in this connection. As presented by Waldemyer to the Prussian Academy of Sciences, the cranial cavity measuring 86.7 cubic inches indicates a brain rather below the average normal size; which must have weighed not more than 44 ounces. The contour of the skull indicating Slavic origin is also of interest, for passing from individuals to races we find artificial microcephaly or head binding a custom with many. Mentioned by Strabonius and Hippocrates, it was also common among the Slavs, Anglo-Saxons and Celts, and the ancient Peruvians, and even in the present century has been practiced by some tribes of North American Indians, by peasants in the north of Europe, and of Brittany and Normandy notwithstanding the efforts of the governments to repress it.

My attention has recently been called to a Scandinavian, an erratic musical genius, who ascribed his superior intelligence to such compression of his head in childhood.

The Peruvians with an average brain weight of 40.1 ounces, in an advanced state of civilization, notwithstanding the disadvantage resulting from artificial microcephaly—which as researches show must have been a practice habitual and widespread—placed in com-

parison with the large-headed negroes (a race unquestionably backward and many in a condition of barbarism) present a view wider than is possible to gain from any accumulation of individual cases. Such view taken in connection with the condition of other microcephalous people, would tend to confirm the idea that within ordinary limit, intelligence is not dependent upon weight or size, so much as upon quality and texture of brain, and above all upon nutrition.

The study of microcephalus brings out some interesting historical facts.

Microcephalic heads are portrayed on Egyptian monuments, both in sculpture and in painting, and two statues of microcephals have been found in Rome.

Castelli alludes to endemic microcephalus as occurring among the Asiatics, the Caribbean tribes, and the Aztecs; indeed, only a few years ago, two examples of the latter, the well-known "Aztec children," who were undoubtedly idiotic, were exhibited both in Europe and America.

The etiology of microcephalus is obscure; indeed, investigations and consequent gathering of data have been too limited to form a basis for definite opinion on a subject upon which pathology thus far has thrown but little light. Kelbs thought it might be induced by hour-glass contraction of the uterus on the child's head, a view that lacks confirmation. At one time it was believed that premature closure of the fontanel tended to dwarf the growth and prevent the expansion of the brain, but this supposition, abandoned, has given place to the now commonly accepted view that the lack of brain development is not the *result,* but the *cause,* of premature ossification; that it is the brain that shapes the skull, and not the skull that moulds the brain.

This is confirmed by Langdon Down, who, from his observation of the crania of 200 idiots, is convinced that the deviations of the cranium have been rather a sequence of circumstances arresting the development and growth of the brain, than the result of premature ossification of the sutures; indeed, he goes on to say that the only instance of ossification that he ever met with was in a macrocephal.

True microcephals are either mutes, or semi-mutes with limited vocabulary, unable to formulate any but the simplest sentences. These are sluggish, sometimes absolutely helpless; or else excitable, restless, with no power of continuous attention, are yet extremely imitative, resembling monkeys in this as also in the character of their movements. The sexual instinct is feeble or absent. All microcephals have narrow receding foreheads and flat occiputs. The fontanel closes prematurely, usually before the fifth, and rarely later than the sixth, month. The brain weight also is much below normal.

According to Shuttleworth: "The prognosis may be said to be (generally speaking) favorable or otherwise, in proportion to the size of the head. With heads under 18 inches in circumference, the manifestation of mental power is usually so small as to come under the category of idiocy; between 18 and 19 inches the case may be designated as imbecile; and from 19 to 20 inches, is not an uncommon measurement in cases of mere 'feeble-mindedness.'" He thinks there is hope for improvement, especially for the higher grades of this type, and cites a case that he had under training for four years, a boy whose head circumference increased during that time from 19 to 20.5 inches. My experience confirms this view, as I have found improvement limited but possible in cases of microcephalic imbeciles, but the majority of cases coming under my observation have belonged to the idiot class where improvement was necessarily circumscribed to the mere gaining of habits of self-help and cleanliness. Few microcephals attain the twenty-first year; having little or no resisting power, they are liable to fall an easy prey to the diseases of childhood or to succumb in early youth to tuberculosis.

HYDROCEPHALUS.

Hydrocephalus (ὕδωρ, water; κεφαλή, the head) is a diseased condition resulting in a superabundance of fluid in the intra-cranial cavity, either between the dura-mater and the pia-mater, known as external hydrocephalus; or in the ventricles themselves, distending them to great size, often infiltrating the white substance as well. This latter condition of internal hydrocephalus, which must be diagnosed mainly by exclusion, is often not discernible until after death.

Hack Tuke reports a case in which hydrocephalus was unsus-

pected during life, but at the necropsy 7 ounces of fluid were discovered in the lateral ventricles and 2 ounces in the sac of the arachnoid.

Most frequently congenital, hydrocephalus develops before or soon after birth, more rarely between the first and seventh year, or it sometimes appears as a sequel to non-tubercular meningitis. In its pronounced form it is easily recognizable, the skull being distended and of peculiar shape—rounded in front and flattened behind, the transverse and the antero-posterior measurements being practically equal; the widest circumference is usually at the temples. The large, bulging fontanel is seen often up to the sixth year, as is also the defective ossification of the edges of the cranial bones. The superficial veins of the scalp are much dilated and very prominent. The eyes prominent and frequently down-cast, are partially covered by the lids; in some cases there is nystagmus and there is often decided deafness. At times, as the fluid increases the patient gives utterance to a peculiar scream known as the "hydrocephalic cry." The body is generally puny and dwarfed, there is a peculiar "top-heavy" gait, and often a complication of epilepsy is noted.

In diagnosing, hydrocephalus should not be confounded with hypertrophy of the brain, which is a much rarer condition. The excessive circumference of the head at the temples and the distance between the eyes observable in the former, do not exist in the latter, and are distinguishing marks.

The prognosis is not favorable in congenital cases. Improvement is possible where the form is external, but internal hydrocephalus, vitiating the very structure of the brain as it does, is naturally always associated with *marked* mental deficiency. Children so affected are generally of middle or low-grade—idiot or high-grade cases being exceptions. External hydrocephalus is not so grave. Indeed in rare cases where it occurs late in life, the physical signs are not so marked nor is the mentality necessarily greatly affected, although there may be more or less eccentricity.

It is related of Cardinal N., a pronounced hydrocephal, who in spite of the disease lived for over thirty years, that his brain after death was found floating in 112 + ounces of water.

There have been many experiments in treatment—surgical and medical; inunctions of mercury and blisters applied to the shaved head and bandages compressing it, but these have not proved encouraging. Training and treatment—physical and mental—including regular exercise, saline baths, massage, careful diet, rest and occupation regularly alternating, are all that can be depended upon to build up mind and body, and retard the progress of the disease.

CHAPTER X.

EPILEPSY.

EPILEPSY, as undefinable as it is baffling, may yet be described as an imperfect or an enfeebled condition of certain nerve centers producing an insufficient or an ill-regulated supply of nervous energy which is given off in explosions at irregular intervals; evidenced in temporary suspension of motor coördination, in convulsive movements, ordinarily associated with loss of consciousness—total or partial—and often followed by general prostration (more or less excessive or prolonged) of the entire nervous system, tending to a gradual but certain diminution and degeneration of mental, moral and physical powers. Among the most ancient of recorded diseases —coeval almost with the history of man—epilepsy, like a haunting shadow, has through ages dogged the footsteps of successive generations. In every clime, among all races, through all nations it has left its trace in palace and in hovel, for no class is exempt from it. Time, which has modified so much, makes no change here. Hippocrates' description is to us of to-day what it was to the ancient Greeks, and the victim sends forth the same cry, falls and wallows foaming now, as he did of old at the feet of the Great Physician. Researches into the subject of cause and cure through a period of 3,000 years have resulted only in revealing a hydra-headed monster, until physician and philanthropist, scientist and layman, are alike tempted to exclaim with Sysyphus: "Mine is at most but an everlasting hope!" An exhaustive study of 250 cases out of some 800 under observation, but verifies to me the axioms of the past and I find no warrant for departing from the dictum of Hippocrates: "The prognosis in epilepsy is unfavorable when the disease is congenital, where it continues to manhood or where it occurs in an adult. We may attempt to cure the young, but not the old." "May attempt," he says, but I find nothing to justify the hope of ultimate and permanent cure even through a radical change of life and environment. No there is no cure. Epilepsy is due to a something

so subtle and elusive that it has so far escaped us; a poison so to speak, for which we have yet to find an antidote. The evil—like mental defect with which it is almost invariably associated—once developed clings, ready for reappearance upon the slightest provoking cause; or will later be found again in that period of reversion to original type popularly known as second childhood. My experience shows a patient immune from seizures for three years, during which time treatment and regimen were continued—for I never considered him cured—dying in a spasm before I could reach him, although living in the same house. Epilepsy with no apparent exciting cause, but traceable to convulsions in infancy, developed in a patient of sixty years of age; and in yet two other cases there was a reappearance of spasms after cessation of 19 and 30 years respectively. The experience of many physicians would doubtless prove these not exceptions, but typical cases.

Where epilepsy appears late in life without apparent cause, investigation almost unfailingly reveals infantile convulsions, often so slight as to have been overlooked or forgotten by the mother. I am confident that a large proportion of the spasms of early infancy are of this character, due in large measure to the influences of heredity, the combination and concentration of varied neuroses tending to produce and to intensify epilepsy. It is possible that merely a high-strung, over-wrought nervous condition of one ancestor may combine with phthisis, neuralgia, migraine or hysteria to produce the same unfortunate result as would the combination of any two of these, or again of any one with insanity or imbecility. One would naturally suppose that an unwritten law would prevent intercourse of epileptics and therefore forbid or at least deter direct transmission of the malady, yet records of facts to the contrary are not lacking. Hammond in a study of 171 epileptics, finds heredity a cause in 45—21 of these proving direct. Echeverria gives 26 per cent. of 306, as descendants of epileptic parents. Delasiauve found the same in 33 out of 300 cases, and Herpin 10 in 68 cases.

In the researches of Boucher, Cazanveilh and Martin, no less than 78 children are noted as the progeny of 19 epileptic parents. I find as many as 17 with such parentage, and one boy with an epileptic grandmother had a brother and several aunts and uncles all sim-

CASE A.

CASE B.

CRETINOIDS.

ilarly afflicted. On the other hand, Osler and Marie find very few instances of direct transmission. Hamilton says that fully 50 per cent. of his 980 cases are attributable to heredity. Gowers gives 35 per cent., and the 56 per cent. of my table coincides with Spratling's record in 1,100 cases. The age period presented in my table gives further confirmation of the congenital theory. Reading by hemi-decades, we find 167, 66 per cent. of these cases developing epilepsy in infancy between birth and the fifth year, while all but the 34 of unrecorded ages are previous to or during the period of puberty. Nothnagel also finds it most common between the ages of 7 and 17 years. Hasse, Gowers and Spratling find over 75 per cent. developing before the twentieth year, and this large proportion is confirmed in the experience of Landon Carter Gray. These statistics are most significant as pointing to that period of life when hereditary influences are most naturally manifested.

Intemperance of parents has also been adduced as a prolific cause of epilepsy. Echeverria in an examination of 572 epileptics, children of persons addicted to drink, found that 257 could be attributed directly to the habits of the parents, while in 67 other cases there was a complication of syphilis and alcoholism. Moeli says that of Germans affected with delirium tremens, from 30 to 40 per cent. are epileptics. Hippolyte Martin, among 150 *insane* epileptics, found 83 with a paternal history of intemperance. Only 15 of my 250 cases of *imbecile* epileptics had such history.

Syphilis in parents may be accounted less a predisposing than an actual cause, the epilepsy being the direct outcome of the local cerebral disturbance. I find it in only 2 cases, and Echeverria in only 7, of his 618 cases.

Among exciting causes I find traumatism most frequent—falls, blows and wounds, occurring for the most part before the tenth year to the number of 50; other exciting causes being in 21 cases, injuries to mother during gestation; in 10, the result of difficult dentition; and acute sicknesses—gastro-intestinal disturbances, eruptive fevers, etc., and above all that fruitful source of all ills, malnutrition—fill out the rest.

There has been a question as to sex predisposition to epilepsy. Nothnagel, Herpin and Reynolds find no difference in the number of males and females attacked. Sieveking and Gowers find females

in excess, while the statistics of Althaŭs, Boyd, Osler and Gray show, as do my own, males in larger proportion.

The following table presents in condensed form the relative sex statistics, and the age period of appearance as far as obtainable, together with the etiology, classifying the various heredities as predisposing and various accidents as exciting causes.

Age Period of Appearance in Hemi-decades.	Sex.		Causes.							
			Predisposing.				Exciting.			
			Hereditary.				Accidental.			
	Male.	Female.	Mixed Neuroses.	Epilepsy.	Alcoholism.	Syphilis.	Traumatism.	Injury to Mother During Gestation.	Dentition.	Acute Sickness.
5	99	68	71	11	10	2	34	13	10	16
5–10	26	9	8	4	2		9	3		9
10–15	7	3	4				4			2
15–20	3	1	2				2			
Not stated	21	13	20	2	3	1	1	5		2
Total	156	94	105	17	15	3	50	21	10	29
	250		140				110			

The study as will be seen does not go beyond the twentieth year, which is the generally accepted age limit beyond which epilepsy rarely develops. There are of course instances to the contrary, especially if there be a history of direct inheritance where a constitution, either through prepotency of other heredity or by means of well-regulated habits of living had thus far been enabled to resist, has after this period succumbed to sudden shock, physical or mental; so also indulgence in any of the vices, or even a change from a regular to an irregular habit of life may break down all the safeguards so carefully built up, and bind the victim captive to his inherited ill. Again, as has been previously shown, the epilepsy of adult life may prove not developmental, but recurrent and traceable to infantile convulsions.

In the diagnosing of individual cases, the symptoms manifested in the seizures claim the first attention. These, as presented in four well-defined classes, have given the symptomatic classification which is both convenient and practical. Taking them in order from the more generally diffused to the localized forms, we have grand-mal, petit-mal, psychical epilepsy and Jacksonian or focal epilepsy.

The first, grand-mal, is literally what its name denotes and cannot fail of recognition. There may or may not be the warning cry, the patient simply drops with the whole body convulsed, teeth set, often upon the tongue, and the mouth foaming. The face flushes and pales to the point of lividness, and relaxed conditions often cause involuntary evacuations of both bladder and rectum. Loss of consciousness is the ordinary rule, to which of course there may be exceptions. Thus, I remember exclaiming over a beautiful boy in a convulsion of unusual severity, "How sad! Were he my child, I would rather he were dead." The next day he asked, "What would you do if I were your child? You turned away and I didn't hear." The seizure is generally followed by some mental confusion and by sleep prolonged and heavy. Convulsions may however follow in such rapid succession, as to permit only partial return of consciousness causing the condition known as *status epilepticus,* the attacks not infrequently lasting for days. I recall one case where for three days the spasms were repeated every two and a half minutes with clock-like regularity. Rupture of a blood vessel or death from exhaustion may intervene within a few hours, or unconsciousness may deepen into coma. There is elevation of temperature, a quickening of pulse and respiration, and not infrequently partial or complete hemiplegia; with returning consciousness there is often found impairment of memory.

Petit-mal differs from grand-mal in degree, not in kind. Usually, the attacks being less severe, the patient does not fall. There is simply a paling or flushing of the face accompanied by a gasp, a sigh, or a momentary loss of consciousness. The attack may not be sufficient to interrupt either work or conversation—the speaker merely pausing for a moment only to resume. Again there may be giddiness or a fainting spell. These, however, are apt to increase in force and frequency and eventually merge into the more violent form of grand-mal.

Psychic epilepsy, first recognized and named by Weiss is less frequently encountered than other forms. In this, as the name implies, the convulsion is mental rather than physical, and might by the uninitiated be easily mistaken for insanity. The seizure coming without premonition, increases in force for hours and even days;

then gradually subsiding is followed not by coma, but by a period of automatism. In a state of absent-mindedness the patient may pursue his regular duties automatically, from habit, like a machine, rather than with an intelligent knowledge of what he is doing. Weiss reports the case of a man whose attacks, lasting through several days, were characterized by frantic swayings to and fro and shouts of fire; another of a boy whose one desire at these times was to kill something. His malady gradually assumed the form of grand mal.

Jacksonian epilepsy differs markedly from the other varieties. In this the attack begins in some peripheral portion of the body—in the leg, in one side of the face, or most frequently in the muscles of the hand or thumb. The convulsive movements are circumscribed, and are confined to one portion of the body. Consciousness is rarely entirely lost, sometimes not even disturbed, the patient being aware of what goes on around him. There is a singular proclivity among some epileptics, as among hysterical people and criminals, to simulate spasms, always of course with an ulterior motive, such as the English "dummy chuckers" who feign convulsions on the street while their confederates pick the pockets of the crowd. Detection of feigned epilepsy however, is quite simple. The actor invariably falls without injury, nor does he ever bite his tongue; however violent the movements, they are always coördinated, and moreover as his curiosity gets the better of him, he cannot resist the temptation to open an eye occasionally to see the effect of his stratagem; then of course, the greater the sympathy elicited, the greater the violence of the spasm. The remedy is generally a counter movement, thus: A bucket of cold water coming unexpectedly quieted one case of hystero-epilepsy; for another, preparations for the cutting of a girl's magnificent growth of hair quickly changed her writhing to recognizable screams of anger; a large dose of fluid extract of pecac and warm water promptly restored a third. It is needless to say however, that such remedies are to be personally administered and not given by prescription. The symptoms of grand mal, as already given, are unmistakable, and the differential diagnosis between the epileptic and the hysterical spasm is clearly set forth in the following table, taken from Gowers.

PLATE XXXVIII.

CASE C.

CRETINOID.

	Epileptic.	Hysteroid.
Apparent cause.....	none.	emotion.
Warning.....	any, but especially unilateral or epigastric auræ.	palpitation, malaise, choking, bilateral foot aura.
Onset.....	always sudden.	often gradual.
Scream.....	at onset.	during course.
Convulsion	rigidity, followed by "jerking," rarely rigidity alone.	rigidity or "struggling," throwing about of limbs or head, arching of back.
Biting	tongue.	lips, hands, or other persons and things.
Micturition.....	frequent.	never.
Defæcation.....	occasional.	never.
Talking.....	never.	frequent.
Duration.....	a few minutes.	more than ten minutes, often much longer.
Restraint necessary...	to prevent accident.	to control violence.
Termination	spontaneous.	spontaneous or induced (water, &c.).

The premonitory symptoms most common among my cases observable in both sexes were, the epileptic cry in about 60 per cent.; rapid debilitation up to the moment of seizure after which the recuperation was equally rapid in about 7 per cent.; maniacal violence in periods varying from a few hours to several days in about 10 per cent.; running and climbing preceding an attack in some 5 per cent. of males, and 3 per cent. of females. There were also several interesting individual examples: One boy rotated rapidly on one foot, another on both feet before falling; and a boy professing to have no fear of thunder and lightning, had invariably a seizure at the approach of a storm, the spasms continuing throughout its duration. An attack may occur without premonition, or it may be preceded by an aura. Gowers says that auræ are observable in fully 50 per cent. of all seizures, but in my observations I find less than 20 per cent., and they of the following character. (See Table, page 218.)

Pathology, thus far, has furnished little more than grounds for conjecture. If, according to generally accepted theory, spasms are but an excessive accumulation and sudden discharge of nervous energy, due to imperfection and impairment of the sensory and motor cells, then naturally we look to pathologic conditions of the brain for a solution of the question, and for facts concerning theory.

But so far, we may as well question the silenced gun of its cannonading! The explosion has come and gone, and left no trace of how. Indeed macroscopically the nerve centers generally present a normal

Auræ.	Male.	Female.	Total
Pain in præcordia, and stinging sensation traveling from left hand upward, and down left leg.	1		1
Stinging sensation in right foot.	1		1
Stinging sensation in right arm.	1		1
Stinging sensation in left arm.	1		1
Numbness in left arm and fingers.	1		1
Tingling in both hands.	1	1	2
Tickling in palm of left hand	2		2
Numbness in feet.	2		2
Peculiar coldness in breast.	1		1
Pain in abdominal region traveling upward.		4	4
Extreme nervousness.		1	1
Dizziness.	7	4	11
Sensation of burning in face.	3		3
Nausea and vomiting.	1	2	3
Sensation of suffocation.	1		1
Rigors.	2		2
Sleepiness.		1	1
Tinnitus aurium.	1	1	2
	26	14	40

appearance, although there may in some cases be slight opacity of the membranes and possible evidences of meningitis. Even microscopically the changes noted are slight and are apparently of secondary origin; as Gowers tells us "the changes in the nerve-elements are probably of that molecular character, which is revealed only by altered function and eludes the most minute research." True, in cases of *status epilepticus* the necropsy will reveal intense congestion—the veins and sinuses deeply engorged, the meninges injected, and the white portion of the brain show punctate hemorrhages, whereas the gray matter is darkened or of a pink tinge; but these might also be found in cases of prolonged asphyxia which were non-epileptic, and therefore can be accepted only as result and not cause of seizure.

The prognosis in epilepsy is most grave. Death, always imminent, may come at any moment, any spasm being liable to terminate in asphyxia or in brain suffusion. Fully 25 per cent. of all deaths occur in *status epilepticus,* or else the enfeebled constitution, unable to resist, succumbs readily to the inroads of disease, especially to tuberculosis, or to cardio-vascular affections, to which all epileptics are peculiarly susceptible. Mental impairment also may always be counted upon—gradual but certain in its progress. Idiocy, imbecility or dementia will be found in fully 90 per cent. of all epileptic communities. In apparent controversion of this, Napoleon, Rousseau,

Mohammed, Julius Caesar and even St. Paul himself have been cited as epileptics. But is not every genius abnormal—one side of the nature developed at the expense of the other, and such asymmetry but an exposition of the law of compensation? Not only do these stand thus acknowledged by history, but even were it conceded that they were perfectly developed men they would still be accounted singular exceptions to the numbers of epileptics recognized in all ages as incapables. Again there has been much talk of cure; but when we think of one in every 500 as epileptic and then follow the very scant statistics of those who have claimed to cure, we are not encouraged to believe that a specific has yet been discovered.

Trousseau states that out of 150 cases of epilepsy treated by him, he had 20 recoveries. Beau and Maisonneuve estimate their recoveries at 4 per cent. Bielefeld claims to discharge 6.5 per cent. recovered. The Craig Colony for Epileptics considers that from 7 to 10 per cent. might be cured, and from 60 to 70 per cent. improved. This latter statement my experience fully confirms, but I have no faith in permanent recoveries, nor do I think there is yet data from prolonged investigation sufficient to substantiate such assertion. But release from such affliction, even for a time, cannot but be accounted a boon, and the fact that treatment and environment can accomplish this is surely a sign of progress and a victory for science. There are, as before stated, many examples of complete immunity for varying periods of time. I have now under my care a man aged 36, with a record of convulsions at two and one-half years, who within the past four years developed epilepsy. For two years the attacks increased in force and frequency but yielding gradually to treatment, for the past twelve months there has been complete cessation of spasms; nevertheless a recurrence at any time would not be unexpected.

A reduction from several seizures a day to the same number a year is not infrequent with my patients. With one there was a change from 28 in one day to 1 every 10 days. This marked periodicity in return is, however, an exception. Epileptic seizures as a rule recur at irregular intervals induced by any adverse change; indigestion, undue depression or excitement, or even sudden changes of weather, having noticeable effect in increasing the number of spasms. The

life period in epilepsy is mercifully brief. There seems a consensus that in a general way every spasm encroaches more and more upon the physical and mental tenure; twenty-five years being the average age limit, the comparatively few who enter upon or who pass the thirties, age rapidly, become in fact physiologically old and begin to show the faltering step and withered skin of seventy. Exceptions there are, where the periods of immunity from attack have been more or less prolonged, or where, as in Jacksonian epilepsy, the nervous discharge is circumscribed, confined it may be to the motor area of the brain, without encroaching upon or affecting contiguous areas. A remarkable case of longevity is cited in the British Medical Journal:

The man was a confirmed epileptic for fifty-seven years, during which time it is estimated that he must have had more than 60,000 fits, without any apparent impairment of his faculties. By trade a basket-maker, he would be interrupted by attacks varying in number from five to thirty a day, but returning to his work apparently so little inconvenienced, that both he and his wife accustomed to their occurrence, came to regard them as part of their daily life. He died during an epileptic seizure, however, at the age of seventy-one.

In this case it may have been possible that the distraction and diversion of a congenial occupation, by preventing that moodiness and introspection so common a cause of complications in epilepsy, may have contributed to circumscribe as well as to lessen the force of spasms; for the mental faculties aroused and quickened in one direction are more able to resist attack in another, consequently mental enfeeblement is slower in progress and encroachment upon other areas imperceptible, if not temporarily arrested. There can be no doubt but that the influences of moral and social environment have a large place in the treatment and modification of epilepsy, more especially when medical treatment has so far gained control as to secure temporary cessation of spasms. Through periods gradually extended it is possible to study with greater accuracy, and to adapt treatment to individual needs, so that as the time approaches for a seizure, by the precautionary measures of rest, diet, the avoidance of exciting causes, and the use of special remedies, frequently an attack may be averted. Such possibility and to this end, the urgent necessity for

Case A. Case B.

Case C.

MYXŒDEMA.

PLATE XXXIX.

constant exercise of will-power by the patient, cannot be too strongly insisted upon. Just as he finds in the effort to simulate, and under conditions that favor it that he may bring on a spasm, just so may he be brought to recognize, that with some assistance outside of himself he may avert or defer an attack, and therefore that it is, in a measure, under his own control.

I frequently, at theatrical entertainments, exact promises from epileptics that there shall be no spasms during the performance, and the evening always passes without such interruption, the attention being diverted and held, while the will is unconsciously exerted and centered upon one aim with definite result. A striking example of the value of pre-occupation and concentration of thought and will upon congenial occupation as an aid in treatment, is found in a patient now some twenty-two years of age, a hydrocephalic epileptic, one of three children all imbeciles of middle grade, with family history of intemperance on both sides. Responding first to treatment—hygienic and medical, including frequent baths and carefully arranged dietary—he was enabled to enter school and follow a course of manual training in various lines. Observation being encouraged and interest aroused by household occupations and by the care of plants and animals; life and nature studies were daily reproduced in paper, in chalk and clay modelling, in free-hand drawing and color combinations, in cardboard and wood constructive work, and in applied design. The muscular development and coördination, absolutely necessary to skill and dexterity in the use of tools, was acquired in daily physical and gymnastic exercises, while the powers of attention and quick response were further stimulated by military drill. During a period of twelve years of entire immunity from seizures, he has grown to be quite a useful member of his community, although his mental limit has been reached; whereas, out in the world, he would have been a pauper, a tramp, or a criminal possibly serving now his term in the penitentiary. A fairly good artisan, he has accomplished very creditable cabinet work in both the making and carving of furniture, and is in frequent demand for odd jobs in both painting and carpentry. Of good bearing, strong and muscular, excelling in athletic sports, the only explosions he is subject to at present are sudden bursts of

temper, quite as soon over. I have never considered him other than an epileptic, and a reappearance of seizures may be looked for at any time when, with other brain complications, degeneration will be rapid and life soon over. But treatment and training have combined to give him 12 years of comparatively useful, happy existence, and to show how the work makes the workman even more surely than does the workman the work. This may be considered a typical example of what treatment and training together with suitable environment can accomplish for certain forms of epilepsy. That no one method can be given as a specific, is shown in the case of a schoolmate of his, about the same age and to all appearances similarly affected. For this boy of a higher grade of mentality, possessed of great physical beauty and an attractive personality, the same treatment seemed to open even greater possibilities, the malady being so far under control as even to admit of his travelling alone on one occasion, as far as from Boston to Philadelphia. But the period of exemption in his case was never extended beyond a few months, and with a recurrence of spasms came rapid and complete deterioration, and to-day in the utterly helpless epileptic idiot there is not a trace of the once beautiful boy.

As the treatment must be individual, a healthful, cheerful environment is of the first importance in experimenting, selecting and adapting means to an end. A life in the open with occupations and diversions that will encourage and tempt to exercise, and conveniences for and inducements to frequent bathing—the hot bath gradually reduced in temperature is best—the system thus aroused and alert must not be stultified by over-eating, to which most epileptics are given, nor unhealthfully stimulated by indulgence in petty vices. A simple dietary and regular rest periods must form the basis of a renewal of a life whose only wholesome variation is to be found in congenial occupations so arranged and varied as to offer constant stimulus, aided by daily physical exercises gradually extended and prolonged, but never to the point of fatigue. With seizures in a measure controlled and the system thus toned up, any excess of exhilaration may be corrected by sedatives and such other means as individual needs suggest. To the epileptic, always susceptible to influence or even suggestion, any change, be it that of medical attend-

ant, nurse, location, diet or medication, may cause amelioration sufficient to build upon. Thus must the treatment—moral, mental, physical, dietetic, and medical—constantly interchange and assist. During a spasm it is only necessary to place a pillow under the patient's head, loosen the waist-band and collar, and allow the paroxysm to pass. The old custom of attempting to restrain the limbs during the convulsion is most reprehensible. The remedies upon which I mainly rely, are the bromides—preferably bromide of sodium—combined with arsenic as a guard against acne, omitting one week in every eight, so as to allow the system to recuperate. In some cases the best results may be obtained by giving the bromide with the food, excluding all salt, and sprinkling it in its place. This is said to act two or three times more powerfully than the drug administered in other ways.

The fluid extract of solanum carolinense has been highly recommended, and one writer claims wonderful results in eight cases. I placed twelve boys and twelve girls on it, and the increase in both force and frequency of spasms was alarming. Hydrastin in full doses was tried, on twelve cases, with the same result. I placed one hundred cases on the fluid extract of eupatorium perfoliatum in doses of from one-half to one drachm, according to age, in combination with from ten to fifteen grains of bromide sodium. This acted well for a time, but on withdrawing the bromide, the last state was far worse than the first. Tincture of adonis vernalis in combination with bromide of potash, has acted well in twelve cases; bromipin in twelve also has reduced the force and frequency of spasms, but I have failed to get results hoped for in the use of tincture of simulo. In anemic cases, I find a combination of arsenic, tincture of chloride of iron, and bromide efficacious. Nitrate of silver in one case proved effective, and codein in others, and not infrequently with girls, bromide and belladonna. I have never met with much success in the use of nitro-glycerine, of cannabis indica, of zinc or of borax.

Fleschig uses opium in large doses three times a day for six weeks, then omitting, gives the bromides in equally large doses for two months. I have tried this, but neither with it nor with the hyoscyamin, have I obtained good results. In several cases where

there was an aura, I have prevented a spasm by applying a ligature and in others by the inhalation of nitrite of amyl.

In *status epilepticus*, I first try chloroform, and if this does not act promptly, I give a hypodermatic injection of morphia and atropia, repeated, if necessary. A hypodermatic injection of pilocarpin may be used, but the depressing effects of this drug are so pronounced that great care must be exercised to avoid fatal results.

In nocturnal epilepsy, I have obtained good results from the combination of a single bromide with a small dose of chloral.

Epileptics are generally of a constipated habit. The bowels should be kept open by an occasional enema or by a gentle laxative. Cascara singly or in combination is most excellent, or at times calomel in minute doses. Epsom salts or Hunyadi Janos water may be administered regularly in obstinate cases.

Surgical treatment is much vaunted but in my experience, of nine cases only, the results are not encouraging. One of these, a bright lad of fifteen, an apt Greek and Latin scholar studying for the priesthood, had been troubled with petit mal and later had an attack of grand mal lasting several days. He was trephined and reduced to the condition of a profound idiot, incapable even of self-help. There was cessation of spasms for eight years, but they returned and he finally died during an epileptic seizure.

The diet, which should be light and largely vegetarian, may include all simple foods—milk, eggs, broth, cereals, fruits well-ripened, avoiding those with small seeds. Meat may be given sparingly—not oftener than once a day—and any article that appears to disagree with the patient should be withdrawn. As most epileptics are apt to gormandize, the patient should not be allowed to overload his stomach nor to sleep until after the completion of gastric digestion.

The consideration of treatment and methods of dealing with epileptics leads naturally to the question of environment and conditions under which these can be best carried out. For the wealthy or the fortunate is opened every amelioration, even that of occupation and the many social diversions. But it is to the family of moderate means, to the bread-winner, or to the very poor, that the burden of such a member proves insupportable, more especially when to the mother this added care brings all the nameless terrors of ills threat-

ening children coming to the birth. A source of constant anxiety to others, the unfortunate is himself, in many instances, gradually forced into a life apart. Cut off more or less from school companionship and association, opportunities narrow for discovering that occupation for which he is best fitted, and, consequently, means of training also. Indeed, however well prepared he may become, his infirmity must always prove an impediment to securing positions of trust and responsibility. An object thus of terror or of pity and commiseration, he gravitates toward a life of self-indulgence or of monotony and loneliness, tending greatly to produce mental deterioration, a deterioration furthered by the temptation to deviate from the regular routine and special diet, prescribed though it may be by a family physician in whom he places the utmost confidence. Not only this, but various phases of the disease are characterized by wanderings, delusions, or even by the perpetration of violent acts, of the performance of which the patient may be oblivious at the time, but which render him none the less dangerous because irresponsible. I recall an instance of a young man who was most violent, during seizures which were unfailingly characterized by a desire to kill his mother; another, ordinarily quiet and inoffensive, having delusions of persecution, would alarm the neighborhood by running out at night, half-nude, and holding conversations, as he supposed, with the Deity. Finally, in great bites, he began literally to eat himself up at "the command of God." A third case, a woman who twice poisoned herself with Paris-green would swallow whole boxes of buttons, and at last committed suicide by leaping from a window. Yet another, a woman of means—gentle, refined, cultivated, and quite capable of the management of her own business affairs—I saw on the street kicking, screaming, and struggling with a policeman surrounded by a jeering crowd.

Both home and community life revolt from such disturbance of equilibrium, and an effort to escape from these conditions—conditions intensified by rapid increase and as yet unrestrained by suitable marriage laws—has led to the crowding of these unfortunates into insane asylums or into institutions for the feeble-minded. This is a double wrong—a wrong to the institutions to whom their care is a matter quite apart from their legitimate aims, and to the indi-

vidual, a palpable injustice, not only placing him in a false position, but condemning him to an association which does not conduce to his advancement. Treatment he receives, and that of the best, but in hospital or in institution wards he is more lonely than in the home, with no added motive for active pursuits, and no incentive to arouse a sluggish will. Valuable it may be to science, this massing of the afflicted in asylum wards, thus facilitating the collection and comparison of data, but it cannot be denied that the end desired for the individual has not thus been attained. With all the benefits of skilled treatment and multiplied creature comforts, a life of mere invalidism, with nothing to divert the sufferer's attention from the shadow of coming ill, is at best but a maimed existence. Without the stimulus of congenial employment and the continued awakening of the powers within, one loses the sense of "going on and on and ever to be," and sinks into a dull apathy which can hardly be termed living. It was the knowledge of this, as well as the conviction of the certainty of ends to be attained even by a child putting forth his best efforts and working among his peers in fair and equal competition, that has been at once the inspiration and the success of Bielefeld, and of the Craig Colony. The substitution of home for institution life, by division into small families, according to condition, social standing, sex, or previous occupation; opportunities, in the form of schools for the young and of training for all according to individual proclivity; and the many avenues opened for industrial pursuits and definite aims in life; and lastly, the scientific investigations, leading always to greater amelioration, are the essential principles that govern these splendid organizations, which may well be emulated by all future communities of defectives.

Dietary for Epileptics.

To be modified to suit individual cases.

All cereals.

Rice thoroughly cooked.

Broths and soups.

Toast; bread and butter; crackers; buns.

Poultry; roast beef; steak; Hamburg steak; roast mutton; fresh fish; oysters, raw, panned or stewed. All used sparingly.

Eggs—shirred, dropped or boiled for twenty minutes until creamy.

Potatoes—sweet and white—cooked in any way except fried and browned. Tomatoes, stewed—strained to avoid seeds.

Beans; peas; asparagus; onions; lettuce; spinach; beets.

Apples—stewed or baked; oranges; bananas; peaches; cherries; dried, evaporated or canned fruit.

Ice-cream and water-ice; gelatin; jellies; simple puddings; plain cake; junket; cheese.

Cocoa; milk; lemonade; weak tea and coffee.

Condiments and salt should be used sparingly, if at all.

ARTICLES TO BE AVOIDED.

Cabbage; pork; veal; fried oysters; lobster; crabs; salmon. Rich cakes, puddings or pies. Fruits with small seeds.

If a non-uric acid diet be necessary exclude absolutely all meats; poultry; eggs; fish; shell-fish; coffee and tea; salt and condiments.

CHAPTER XI.

IDIOTS SAVANTS AND INSANITY.

IDIOTS SAVANTS.

Idiots savants—"learned idiots"—are mental defectives of various grades, who have special talents in one or more directions, but who may otherwise be very deficient, both mentally and physically.

They are not examples of but exceptions to the usual imbecile class; those in whom the mental processes are slow or in some directions deficient, but who possess some well-marked talent out of all proportion to their mental calibre, which they exercise with wonderful facility, often automatically.

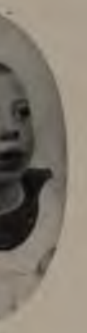
Many of those exhibited in cheap museums, or the side-shows of the circus as "lightning calculators," "musical phenomena," "mirror writers," and as wonderful checker, card, or chess players, belong to this class.

The psychology of the condition is involved in uncertainty and obscurity, and even were the physiologic processes known, it would still be impossible to tell the why and the wherefore of the peculiar talent. In the majority of cases I note a history of meningitis during infancy.

Peterson says that idiots savants have great facility in imitation—are mere copyists, with no power of spontaneous invention. While the power of imitation is one peculiar phase, I do not always find originality lacking and can cite at least two cases to the contrary. The first, a musician, improvises readily on both organ and piano. The other who, in caricature drawing a second Nast, not only illustrates but, drawing free-hand with rapidity, will execute any suggestion, elaborating and originating as he goes along, always incorporating some peculiarity of the individual.

Peterson further finds "the aptitudes frequently lost before adult life." Our experiences differ in this also, as both the cases I have cited and many others, had passed the twenty-first year with talents cultivated and gaining through exercise.

PLATE XL.



CASE C.

CASE A.

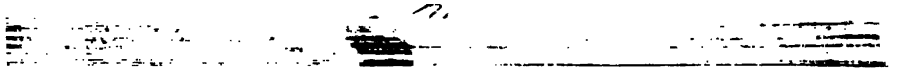
CASE B.

CASE D.

CASE E.

CASE F.

MICROCEPHALUS.



I find, however, with Down, this class confined to males and have yet to see a female idiot savant, and the only one I know of on record is Quénan, an idiot at the Salpêtrière, a mute making her wants known by grunts and cries, understanding simple signs but not conversation, and unable to dress herself, who, notwithstanding, was said to be a rare musician.

Langdon Down reports an interesting group of cases. One boy could model ships from drawings and carve with great skill, yet could not read a sentence. His writing was mere drawing; thus on one occasion he copied *verbatim* a letter, to send to his mother, although it did not approach in word or sentiment what he wanted to express.

Another exhibited marvelous skill with crayons, and yet the higher faculties of the mind were a comparative blank.

He cites also cases of tenacity of memory; a boy, having once read a book, could recite pages *verbatim* without an error. Down considered this, however, simply a process of verbal adhesion or automatism, for reading one day a chapter of Gibbon, he skipped a line on the third page, and upon discovering his mistake, he retraced his steps. Ever after, when reciting from this book, he would skip a line on the third page, go back, and correct the error with as much regularity as if it had been part of the text. Later his memory for recent reading weakened, but the recollection of this never failed him.

Another boy could tell the tune, words, and number of almost every hymn that he had read; and yet another, the name and address of every confectioner's shop he had ever visited, and the date of each visit.

One child could tell the date of arrival of all the children at the institution, and could supply accurate and reliable information of each when needed.

One boy, about twelve years old, could multiply any three figures by three other figures with perfect accuracy, as rapidly as they were written; yet he was of such low mental grade that although he had seen and talked to the doctor every day for over two years, he could not tell his name.

A case of improvisation was that of a boy, who taking a book and pretending to read—an art he had not acquired—would improvise stories with great skill and in variety to suit the tastes of his hearers. Another could recollect the airs he heard at an opera, and hum and sing them.

Another case showed the unusual faculty of perfect appreciation of time. The boy seventeen years old did not understand the dial, but could name the precise minute at any period of the day and in any situation. Tested on many occasions, he always answered with a precision that was truly remarkable. As deterioration progressed, response became less ready and he could only reply when a little excited; shaken up like an old watch, the time would again be correctly given, but gradually as his health became enfeebled, the faculty departed. The necropsy, beyond two well-marked and distinct commissures, revealed no difference between his cerebrum and that of a normal brain. Down's explanation of the phenomenon is, "that as every movement in the house was absolutely punctual he had data from which he could estimate the time by accurate appreciation of its flux."

Maudsley describes the case of an imbecile who, after once reading a newspaper, could shut his eyes and repeat what he had read word for word. He also mentions a case of one who could repeat backward what he had just read.

A remarkable case was pointed out to me at the Asylum of Earlswood, England. A man of middle life, an imbecile of middle-grade, a wonderful engraver who could copy a steel engraving with such accuracy and precision that it was almost impossible to distinguish them apart. His large work-shop was filled with beautiful and curious things, all the work of his own hands. Carvings in ivory, dainty as lace; a ship of state—an original conception, representing he British Empire—with angels guarding the prow, Neptune with his trident at the helm, oars in place and the Union Jack over all. An automaton, a giant, thirteen feet high, covered with a cloth, he could not be induced to exhibit to me. An indefatigable worker, he had rigged up a peculiar movable seat in the window, adjusted to various heights that he might gain light upon his work at any hour. Dr. Corner told of his writing to the present King, then Prince of

Wales, asking for ivory for his work, and in due time came a package, quite a large one, from the prince.

Dr. Howe tells of an idiot who, with but little power of language, was capable of wonderful computations. Thus, given a man's age, he could calculate the exact number of minutes he had lived.

" Blind Tom," a wonderful musical idiot savant, was able to catch and reproduce any air he heard, and to play two tunes on the piano at the same time. Of very low grade he, in true imbecile fashion, would get up and applaud his own work.

Gottfried Mind, an imbecile cretin, who died in Berne, 1841, was so clever a painter of cats, singly or in groups, that he was called the " Katzen-Raphael."

The peculiar gifts of the idiot savant include aptitude for music and art, powers of imitation and quickness of apprehension in games, rapidity in arithmetical calculations, and what is probably the base of all these, a retentive faculty deepened in certain lines, pronouncedly evidenced in the matter of dates and events. Indeed a phenomenal memory pertains to both the degenerate and the genius, and would seem the border line showing the approach of one to normal and of the other towards abnormal conditions; that one-sidedness or asymmetrical development of great intellectual power, associated with extraordinary memory for words, dates, and isolated facts, of which Macaulay, Scott, Franklin, and Goethe are notable examples.

Insanity.

Not infrequently, among the feeble-minded, there is intercurrent insanity; again among the insane there are cases that have had their origin in mental defect; thus, the idiot born with limited brain capacity and the dement whose brain is worn out are very near akin. It is a distinction in difference, not in kind; nevertheless in reality there is a wide difference. Insanity is disease of the brain and may prove curable; whereas imbecility is defect—a lesion of the brain—and we cannot cure or supply what is not there.

Insanity may occur among mental defectives as early as the first year, manifested by dullness—incipient melancholia—or nervous excitability developing into acute mania. The torpid thumb-sucking baby, thin, anæmic, constipated, whose attention can seldom

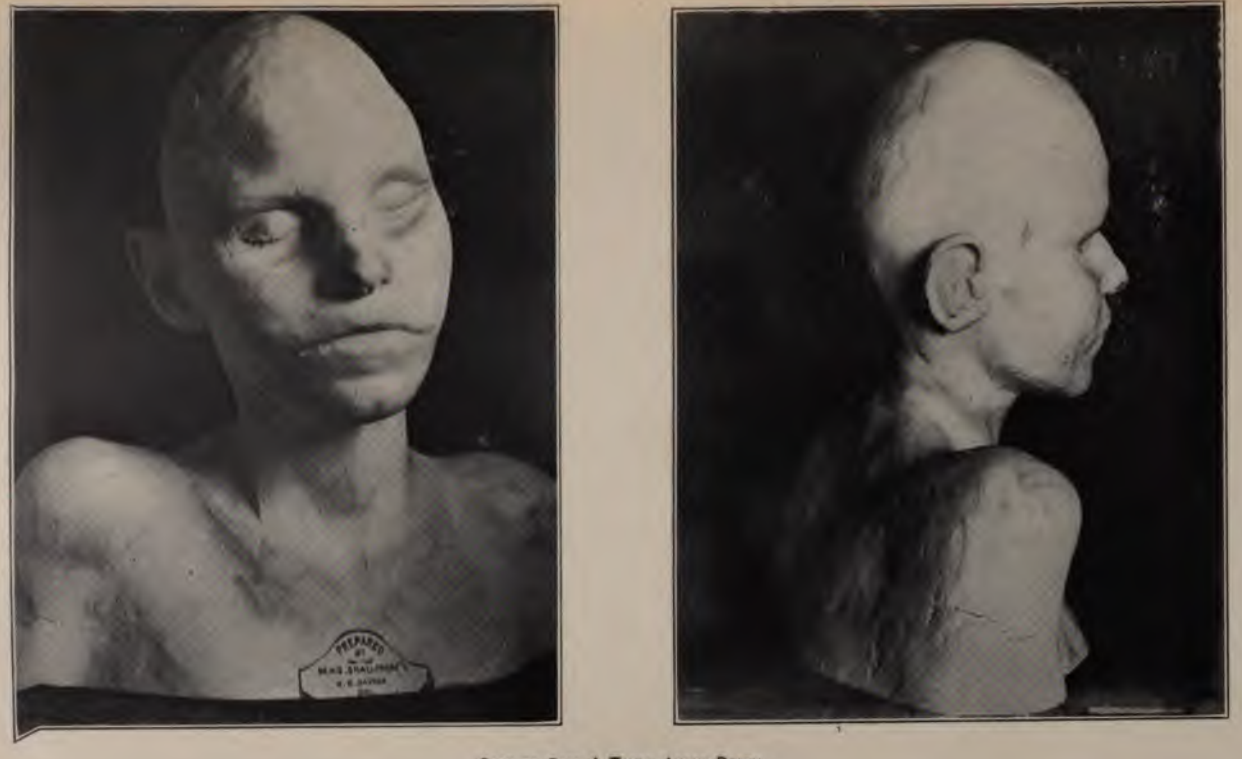
be attracted and never held, is a type of the one; and the screaming, restless, sleepless infant with variable temperature, quick pulse, flushed face, wild eyes and furred tongue, kicking and beating continually with hands or head, of the other class.

In early childhood or youth, symptoms of melancholia are evidenced in loss of appetite, constipation, insomnia, aimless wandering or sitting apart in silent, dull, listless fashion. Depression is frequently accompanied with delusions of persecution and occasionally suicidal impulses. The excitable form is characterized by directly opposite impulses. There is perpetual movement—chattering, laughing, screaming, fighting, biting, attacking others regardless of consequences to themselves, sometimes developing homicidal mania. Destructive propensities appear in the insensate desire to mutilate and destroy clothing, furniture, everything within reach. Pyromania is not an infrequent phase. Delighting in filth, they will smear their bodies, clothing and surroundings with garbage and excrement which, with appetite voracious and perverted, they will even eat.

Overpressure is a fruitful cause of insanity; to force a child beyond his mental limit will precipitate an outbreak into insanity or a lapse into idiocy. Insanity, therefore, is more common in the higher grades of imbecility, although I have had cases among idiots.

There is no difficulty in establishing the diagnosis of insanity, and the prognosis, is generally favorable where there is no hereditary predisposition; although, with recurrence, there is apt to be increase in both force and frequency of attacks.

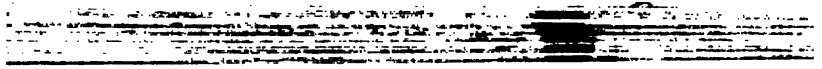
The treatment requires primarily a regular life free from undue excitement or fatigue; simple food, sleep, exercise and periods of rest, occupation and recreation alternating. The system should then be built up with tonics; iron and arsenic (Fowler's solution) alone or in combination are good. Any tendency to constipation should be controlled, using cascara, calomel, or Epsom salts as occasion or individual needs may demand. Trional or tetronal are excellent hypnotics, especially in cases of destructive proclivity.



Cast of Case A Taken After Death.

MICROCEPHALUS.

Plate XLI.



CHAPTER XII.

ECHOLALIA.[1]

Within the last decade contributions to literature relating to the various forms of cerebral speech disturbance have been more or less voluminous; but they have been devoted almost exclusively to those most frequently met with, and the rarer one of echolalia has been by the alienist touched but lightly—an analysis of the term, a definition, a passing word of comment—and then dropped. It remains, therefore, that the literature of this subject is most meager, the search for information most discouraging.

Echolalia,[2] or echophrasia, a broader and more comprehensive term, although not yet sanctioned by common usage, is a speech affection characterized by a tendency to repeat words or phrases spoken by others, hitherto most generally observed and described in combination with coprolalia[3] or with palmus.[4]

The term echolalia was first employed by Romberg, who considered it an evidence of cerebral softening, but Echeverria[5] notes it as a sign of will-perversion or of impaired or defective inhibition.

Giles de la Tourette, in 1885, next took it up and described it in connection with coprolalia and palmus.

Noir, in 1893, made a careful study of the mental degenerates (idiots and imbeciles) of France, and asserted that the affection may occur singly as well as in combination. Landon Carter Gray[6] coincides in this opinion, and my own experience would seem to verify the same.

[1] Read before the Philadelphia Neurological Society, May 31, 1897. Reprinted from the Journal of Nervous and Mental Disease, January, 1898.

[2] *Exo,* Echo; *lalia,* Speech.

[3] *Kopros,* Filth; the tendency to repeat foul language.

[4] *Palmus,* A twitch known also as latah, myriachit, tic convulsif, and jumper's disease; a nervous affection characterized by localized spasmodic movements.

[5] Dictionary of Psychological Medicine, vol. I, p. 424.

[6] The American Journal of the Medical Sciences, May, 1895.

Tuke[1] gives echolalia as a symptom of the general paralysis of the insane, and adds that it may be associated with many other nervous disorders, most frequently with epilepsy—the patient in some cases imitating in his speech not only the words, but even the tones of the person addressing him.

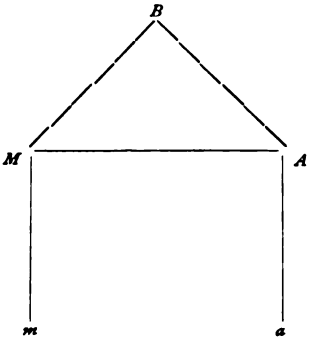
Diligent inquiry among alienists, both here and abroad, and a careful study of imbeciles and of speech defect, covering together over eight thousand cases, give the following data, which, although throwing but little added light upon the subject to-day, may yet by its grouping, aid in future scientific investigations.

Fletcher Beach, late of Darenth Asylum, says that echolalia was very uncommon there, although a few cases did exist. Shuttleworth also found it in a few cases at the Royal Albert Asylum, but neither of these observers gives statistics.

Reginald Langdon Down finds it in 4 per cent. of the imbeciles under his care.

Cesare Lombroso, in a personal letter, says that he has observed echolalia in hysterical imbeciles, but never in microcephalic idiots or cretins, whereas W. W. Ireland's opinion in this direction narrows the field even more, as he states, in a recent letter, that in his experience echolalia is not found among the feeble-minded.

A case reported by Lichtheim, and by him defined as transcortical motor aphasia, may best be explained by the following diagram.[2]



Of the triangle A B M, let B represent the so-called concept center

[1] A Dictionary of Psychological Medicine, p. 526.
[2] With thanks to Dr. Spiller.

(*Begriffscentrum* of the Germans), M the center of motor images, and A the center of auditory images. "The reflex arc consists in an afferent branch, A–a, which transmits the acoustic impressions to A; and an efferent branch, M–m, which conducts the impulses from M to the organs of speech, and is completed by the commissure binding together A and M."[1]

"A variety of motor aphasia is created by interruption of the path B–M, of which we have many examples. From the diagram we should expect the loss of

"(*a*) volitional speech,

"(*b*) volitional writing, whilst there are preserved

"(*c*) understanding of spoken language,

"(*d*) understanding of written language,

"(*e*) the faculty of copying.

"So far the symptoms coincide with those of Broca's aphasia. They differ inasmuch as there is preservation of

"(*f*) faculty of repeating words,

"(*g*) writing from dictation,

"(*h*) reading aloud."[2]

Charlton Bastian, referring to this, says: "Lichtheim's interpretation of this case is wholly different from mine. He accounts for it by supposing a damage of commissural fibers to exist, which pass between his postulated center for concepts and Broca's convolution, which for him also is a motor region rather than one of sensory type." He goes on to explain: "The meaning of this ability to read aloud in such a case is that though the auditory word-center is so much damaged as to be unable to act spontaneously (that is, under volitional stimuli), it is still capable of responding to the associational stimuli coming to it as a result of strong excitation of the visual center. Persons so affected are also quite capable of responding to sensory stimuli passing direct to the auditory center itself—that is, they can at once repeat words uttered before them."[3]

"In this relation it may be mentioned that it sometimes happens that the speech of patients is entirely limited to a mere imitative repe-

[1] Lichtheim, *Brain*, vol. VII.

[2] Lichtheim, C. c.

[3] Lancet, April 10, 1897, p. 1016.

tition of words spoken in their hearing, while they are without the power of volunteering any statement; that is, their auditory word-centers respond only to direct sensory incitations, and not at all to those of an associational or volitional order. In these cases (usually included under the term 'echolalia') a marked general impairment almost invariably co-exists."

"A defect of this kind (occurring in a woman who was hemiplegic from cerebral hemorrhage) has been recorded by Professor Béhier. She was born in Italy, and had resided both in Spain and France. Of the three languages she had thus acquired she had completely forgotten the Italian and Spanish, and had only retained a most limited use of the French. In this latter language *she only repeated like an echo* the words pronounced in her presence, without, however, attaching any meaning to them. But in the case of a woman seen at the Salpêtrière by Bateman, the mimetic tendency was much stronger. She even reproduced foreign words with which she had never been familiar. It is clear that in such a case as this there must have been a mental degradation of a much wider kind than that which occurs when the auditory word-center alone is reduced to its lowest grade of functional activity."[1]

Transcortical motor aphasia, according to Déjerine, is entirely hypothetic, being in his opinion only a stage of amelioration in the cortical motor aphasia of Broca.

Mills[2] thinks echolalia might as properly be classed under morbid impulses as under aphasia, and describes it as "an affection in which convulsive movements are associated with sudden explosion of speech. The patient with a grimace, contortion, or violent movement of some kind suddenly bursts into an obscene, profane, or absurd expression. This expression may be the echo of something overheard—hence the name, echolalia—or it may be a spontaneous outcry. It is not simply an hysterical affection, controllable and curable, but it is a true monomania, the affection of speech being beyond the patient's volition." In a still later article he classes true

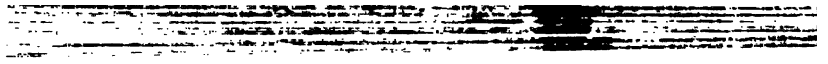
[1] *Loc. cit.*

[2] American Text-book of Diseases of Children; "Speech Defects and Anomalies," p. 663.

CASE A. [CASE B. MICROCEPHALUS.] CASE B.

HYDROCEPHALUS.

PLATE XLII.



echolalia as a characteristic symptom of transcortical or suprapictorial sensory aphasia.[1]

He[2] cites two cases of echolalia occurring in his own practice —one, a woman of cultivation and refinement, who would burst out with a thrice-repeated oath accompanied by an abrupt action; the other, a boy, who would give unprovoked utterance to filthy language, accompanied by violent movements of the head, shoulders, and arms.

Here is undoubted association with both coprolalia and palmus, as in an analogous case coming under my own observation; a beautiful and refined young girl attending a "mixed" boarding-school, would at intervals give sudden expression to three words successively—the first vulgar, the second foolish, the third profane—these also associated with convulsive movements.

In a personal examination of 2,500 mentally defective children, I can find but two cases of what might be called true echolalia. One is not available, but the other, which is unique, is here presented.

Kirtie M. ——, idio-imbecile, white, male, epileptic, aged twenty-two years, with the intelligence of a child of five. He is the eldest of three children, the brother and sister being strong and healthy, both mentally and physically. Family history good, with no trace of nervous or mental disease. The parents, people of exceptional refinement and intelligence, are distantly related, the maternal grandmother and paternal grandmother being cousins german. Paternal grandfather died of some kidney trouble (form unknown) aged forty; maternal grandmother of some heart disease (form also unknown) aged sixty-seven. Father thirty-two and mother twenty at time of this child's birth. Born at full term, ordinary labor, nursed by mother; had no peculiarities beyond an unusually large head, and a perfectly healthy infant up to sixteen months showing, the father says, no indication of mental disease; during teething he had *petit mal*, gradually followed by prolonged spasms, and at the age of four developed true epilepsy, any excitement precipitating an attack. He began to talk with the ease of a normal child, but early

[1] A Text-Book on Nervous Diseases, Dercum, p. 440.

[2] "Aphasia," reprint from the Review of Insanity and Nervous Disease for September and December, 1891, p. 75.

developed a habit of peculiar repetition; learned the alphabet and to repeat with facility Mother Goose rhymes, which he craved to have sung to him daily. His precocious memory just at this period, coupled with these abnormal repetitions, first attracted the attention of those about him as evidencing something wrong.

In disposition he was gentle, easily governed, social, liking the presence of other children although not joining in their plays, would spend hours apart amusing himself with blocks or by weaving strings.

He had the usual diseases of childhood; a severe attack of diphtheria was followed by vasomotor paralysis of the left side of the face, which gradually yielded to treatment.

Upon first entering school, he cried a great deal and talked constantly about "a nice packer o' pins and a buggy and wagon." Sight and hearing good, speech limited, and enunciation slightly defective; nervous, restless, and self-willed, working himself into a fury when thwarted; muttering incoherently to himself, he spent a great deal of time twirling and untwirling a string until at last his nervous fingers found employment in knitting; in this he accomplished quite difficult patterns without assistance, himself setting up the required number of stitches and adding as directed.

He can now count to fifty; is fond of music; is unable to read and write, but household service has proved a means of development for him, as he has learned to wash dishes, sweep and dust, and is orderly and methodical to a degree quite remarkable for one of his intellectual grade; thus he will voluntarily gather up all the litter from the floor, winding the strings into a ball, and on leaving the school-room never forgets to say: "Kirtie come to school this afternoon!" "Kirtie come to school to-morrow!" "Kirtie come to school Monday morning!" as the period may be, without once misplacing time or event. This he does day after day, invariably speaking of himself in the third person.

From this it will be seen that he has a certain degree of intelligence, although he still passes much time in a corner smiling and muttering vacant repetitions; repeating whatever he hears, his thoughts are those of others and his speech is automatic. When addressed, he rarely fails in repetition before reply. Thus one may

ask: "How old are you, Kirtie?" and he will immediately repeat, taking words and tones, "How old are you, Kirtie?" But here may be noted a departure from the habit of precision before mentioned. He is now twenty-two years of age, and yet to the question, "How old are you, Kirtie?" following the invariable repetition, "How old are you, Kirtie?" comes the answer, "Twelve." Though accepting the suggestion that he is now twenty-two, he will, after a few moments, give the same reply, "Twelve." This is the only indication he gives of any loss of memory, and, indeed, I think it may show rather the presence of some strong overlaying association with that number. His keen sense of association is shown further in the following instance: A companion of whom he was very fond died, and some four years later, after attending a service of song, on being questioned as to where he had been he replied, "Heaven, heaven—home, Joe Zun—die song—heaven," the hymn, "Heaven is my Home," evidently recalling his loss.

His memory is, indeed, phenomenal. He recalls not only the visits of his parents and other incidents occurring during the year, but also the names of boys and attendants he has neither seen nor heard of for years, and he will sit talking to himself of them. He catches readily both the words and music of all the popular songs at first hearing, repeating the words almost *verbatim,* or, if substituting, giving equivalents.

One of the most interesting experiments with him appears all the more wonderful when we consider his low mentality. As before stated, he not only repeats words, but also imitates the voice and tone of the speaker and frequently follows accurately in pantomime every movement. One afternoon I gave him, in rapid succession, words and sentences in nine different languages: English, French, German, Spanish, Italian, Japanese, Latin, Greek and Norwegian, and each time, I found that although the words were unfamiliar and would have been difficult for an ordinary person, certainly for a normal child, Kirtie took the pronounciation with facility, his voice keeping pace with mine as I repeated:

"I am here with thee and thy goats, as the most capricious poet, honest Ovid, was among the Goths."

"Liberty! Freedom! Tyranny is dead! Run hence, proclaim it —cry about the streets, liberty, freedom, and enfranchisement!"

"Pas à pas on va bien loin."

"Wir seufzen im nächtlichen Winde. Vom Zweige ein Wink so fern."

"Superabundantissimente."

"Vedi! le fosche notturne spoglie, de'cieli sveste l'immensa volta."

"Namu miò hô ren gé Riô."

"Potentissimus est qui se habet in potestate."

"Zöe mou sas agapo."

"Min norske vinter er s vakker, med hoida snebedakte bakker og grónne gran med pudret haar."

On another occasion he followed me in the same words through three different tones and inflections of voice—the first a mere whisper, the last amounting to a shout, his voice always keeping tally with mine. "How do you do, Kirtie?" "How do you do, Kirtie? Pretty well." I repeated the question in the same voice, then suddenly changing, I asked the question in a loud voice: "Are you well, Kertie?" He, expecting the other question, shouted back, "How do you do, Kirtie? Pretty well." I, realizing that his answer was automatic and that there was no reasoning in it, repeated the question three times before he grasped the change, when he replied, "Are you well, Kirtie? Yes." Placing my hat on the floor, I said, "Go get my hat, Kirtie." This the boy repeated three times without attempting to move from his seat, seeming not to understand. Finally, picking up the hat and tossing it from me, I repeated the request, and, as if aroused by the action, he brought it, still repeating, "Go get my hat, Kirtie." "Thank you," I said, "Thank you, thank you, thank you; you are welcome," he replied.

What did you take out of Miss Annie's room?" "What you take out of Miss Annie's room? Pins. Must not steal ns to put in coat." "What did B. B. do on the base-ball eld?" "What did B. B. do on the base-ball field? Ran away home. Bad boy," and so on, with infinite repetition.

He is extravagantly fond of blocks, with which he will amuse himself for hours. Some years ago he contracted the habit, when irritated, of deliberately tearing his clothing to pieces, especially his stockings. The deprivation of his favorite plaything was found to be the best discipline for this offense. Now, when his nurse attempts

to put away his blocks, he will say, " Do not take away blocks; will not tear any more." If asked if he will loan or give a block, he will reply after repeating the question, " No, no, I will not tear my clothes," and when asked what clothes, replies, " My stockings." Occasionally, if his play is interrupted by a spasm, the blocks will be scattered, but on regaining consciousness he immediately gathers them up, knowing exactly both their position and their number.

Attention is here called to the fact that this case is associated with epilepsy, but neither with coprolalia nor with palmus.

Dr. William G. Spiller, who has been an interested observer of the case, and to whom I am greatly indebted for aid in the work of research and comparison, says: " In performing a necropsy in a case such as you present, I should notice especially the condition of the posterior part of the left first temporal convolution. The fact that the boy is an epileptic is a point in favor of a cortical lesion, though, of course, it is no proof. As he understands all simple commands, and obeys them, the auditory center cannot, therefore, be destroyed, but it *may* be so damaged that it is incapable of responding to volitional stimuli, yet still be capable of responding to impulses passing to it over the tract aA. I am not able to accept the concept-center, and would prefer to explain your case in the words used by Bastian. To me your patient presents a symptom-complex resembling that of transcortical motor aphasia."

Summing up and comparing, we find echolalia a rare form of aphasia, betokening always a marked general mental impairment, and therefore most naturally associated with other forms of degeneration.

There being no record of an autopsy of such a case, the precise location of the lesion, if there be one, remains yet to be demonstrated.

In comparing the case presented with Lichtheim's proposition, we are confronted at once by a difficulty: the boy is an idio-imbecile, and his inability to read or write closes one door of observation, but we do find in common with his table, first, " loss of volitional speech," and second, " preservation of understanding of spoken language and of faculty of repeating words." The absence of volitional speech, notwithstanding an abnormal memory, would indicate a diseased condition of the motor region, but not destruction, as he does reply

and respond to the word of command. Even the repetition of words would appear almost to be such a response, or an exaggerated form of a habit of obedience to suggestion, for it is automatic, not volitional or reflective, such as we often see in normal persons—an effort to strengthen the sensory impressions so as to apprehend before acting.

Thus in the act and in the echo he is simply a creature of suggestion. His capacity for receiving such suggestion so rapidly as to echo these instantaneously without thought, would tend to show less impairment of the sensory than of the motor centers, and therefore confirms my impression that the defect, not so much sensory as motor, is to be defined rather as transcortical motor aphasia.

CHAPTER XIII.

ADENOMA SEBACEUM.[1]

Among the diseases peculiar to the feeble-minded, and one but rarely seen among normal people, none is more curious than the cutaneous affection commonly called the "butterfly disease"—from a fancied resemblance of configuration—and also variously known as *adenoma sebaceum, epithelioma adenoides cysticum, nævi vasculaires et papillaires, vegetationes vasculaires.* The best description I have met with is that of Crocker,[2] who speaks of it as "A disease composed of neoplastic papules on the face, of congenital origin, but of later development."

According to H. G. Brooke,[3] adenoma sebaceum was first described by Jacquet and Davies in 1887, under the title of *Hydradenome eruptif.* Crocker claims that Rayer and Addison, and Gull reported the first cases, but that it was not positively recognized as a distinct affection until Balzar, without a knowledge of the earlier cases, verified the description by a similar diagnosis. We read that there was much study of the subject without any definite conclusions being reached as to its pathologic anatomy and relations, its source and cause of origin, the earliest and latest periods at which it appears, its possible modifications—macroscopic and microscopic—and the limits of its distribution.

Vidal, Hallopeau, Pringle, S. Makenzie, Caspary, and Crocker made further investigations, but I cannot find records of more than 21 cases, including my own, that have been studied and reported.

Duhring considers the disease rare and requiring investigation, Crocker, however, believes it not so rare, but that as the subjects are often epileptic, it has, therefore, passed unrecognized by neurologists without being referred to dermatologists.

[1] From the Journal of Psycho-Asthenics, March, 1899, p. 137.

[2] "Adenoma Sebaceum," Diseases of the skin, 1893.

[3] "*Epithelioma Adenoides Cysticum,*" British Journal of Dermatology, September, 1892.

Of the four cases of adenoma sebaceum I have seen among the feeble-minded, three are epileptics.

Confined to the face, and occasionally found on the forehead and chin, it is generally of central location, the eruption being most abundant on the sides of the nose, and in the nasolabial folds where in some cases it becomes confluent.

The distribution of the lesions is, as a rule, remarkably symmetric, but Crocker reports one case in which it was unilateral, and in one of my own cases, the eruption, it will be noticed (fig. 2) is in the right frontal region, being absent on the left, although it is symmetric on other parts of the face.

The lesions consist of roundish papules varying in size from a pin-point to that of a split-pea. The majority of the papules are of a bright crimson, the color being due to minute telangiectatic vessels that invest them. Again, they may be but slightly colored or translucent and waxy. When the papules are very numerous and thickly grouped, they usually assume a cinnamon or brownish tint, occasionally paling on pressure. A few scattered lesions may be present at birth or appear gradually in early childhood, or they may suddenly increase in number but not in size, at puberty. Once established, the disease has a tendency to remain stationary, although the papules occasionally undergo involution, leaving significant scars that fade in time.

All cases thus far reported, with the exception of two of Crocker's, show mental deficiency; mine were all defectives of low grade.

Crocker cites a case occurring in an exceedingly clever boy of eleven, and another in a woman of forty-eight, whose intelligence was above the average.

According to some writers, additional defects of the skin are usually found to be present, especially fibromata in the hair-follicles, pigmentation, true nevi, and warts. I have met with none of these, except the last, the skin in all cases being otherwise free from blemish.

The diagnosis of adenoma sebaceum is not generally difficult, although it may be confounded with hidradenoma, colloid milium, and acne rosacea. From these it may be distinguished by the following differential points:

In hidradenoma, which is also of congenital origin, the lesions form irregular groups on the trunk, forehead, and face, and are not telangiectatic. Mental deficiency is also absent.

Colloid milium is found most frequently in middle-aged or elderly persons, and involves chiefly the orbital, temporal, and frontal regions. The lesions are few in number, disseminated, discrete, of a pale lemon color, shining, and more translucent than are those of adenoma sebaceum.

In acne rosacea there are the intense hyperemia, the enlarged blood-vessels, and the peculiar acne papules and pustules. The affection most frequently attacks the nose, but may occasionally spread over the entire face.

In one case of adenoma sebaceum, Balzar found the lesions only in the sebaceous glands, and in another a number of small cysts were present in both the sebaceous and the sweat-glands.

Pringle[1] found that in this disease the corium was much thickened, and that the size of the sebaceous glands, both simple and compound, was increased.

Crocker, who examined portions of skin taken from the cheek, forehead, and the fibrous lesions of the back of one of his patients, also found the corium thickened; the most conspicuous feature he maintains, however, was the enormous number and size of the sebaceous glands, the upper half of the corium being studded with rudimentary hair-follicles; there was an unusually large number of sweat-coils in the deeper portion, so that there was increased development of all the appendages of the skin situated at different levels. The papillary vessels were conspicuous, and there was moderate increase of the connective tissue. In a single large lesion from the forehead, which presented so different an appearance when viewed clinically, the most marked distinction was the replacement of the enormous number of hair-follicles and sebaceous glands by fibrous tissue with fragments of hairs and glands imbedded in it. The lesions of the back were centered at the hair-follicles, around which dense fibrous tissue had developed in considerable quantity, the lesions being, in short, follicular fibromata.

[1] J. J. Pringle, "A Case of Congenital Adenoma Sebaceum," British Journal of Dermatology, January, 1890.

Up to the present day there has been no positive response to treatment. The French have experimented with electrolysis—the galvanocautery—but the records of these experiments are still too incomplete to furnish correct data or to give proof that the formation of fresh growths has been checked permanently.

Hallopeau removed adenoma lesions from a patient with a curet and by means of scarification, but they returned within a year. Pringle tried to scoop and bore out nodules, but death intervened before the effects could be fully determined. Crocker removed lesions from a woman's face by means of electrolysis; in a few extensive cases also, he excised the naso-labial folds on each side of the face and diseased patches on the forehead, but with only indifferent results.

The histories of my cases are as follows:

Case 1.—C. G. Low-grade imbecile girl, aged nineteen; hair dark brown; eyes black; sight and hearing good; voice husky, and enunciation defective; very talkative; noisy; indolent; obstinate, and cruel to other children. Mother sixteen, father twenty-one, at time of child's birth. Father's family said to be scrofulous, and several of its members to have had a "breaking out of the skin like C.'s"; father a drunkard, and also addicted to the inordinate use of tobacco. Maternal grandmother died a confirmed dipsomaniac; maternal grandfather, of "some heart trouble"; paternal grandfather, of apoplexy. C. has but one sister living—the mother being unwilling to bring other children into the world, separated from her husband. C. began to walk at sixteen months, and reached mental limit at fourteen years. When three years of age was found in a spasm due, it was thought, to fright at the screams of her drunken father. There has been no return of spasms, but she is extremely nervous.

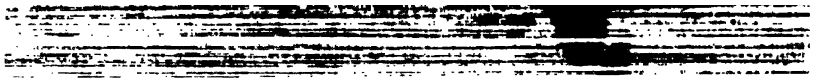
Given a fair trial in school she was able to learn nothing beyond the simplest manual work—a little knitting and sewing.

Plate No. 1 shows the lesions scattered over the face, but confined chiefly to the infra-orbital space on each side, resembling in outline the extended wings of a butterfly. There are no large sebaceous cysts, the majority of the lesions being of a bright scarlet, *shading* off to brown or Indian red.

CASE A.

CARTOON DRAWN BY CASE A.

IDIOTS SAVANTS.



Case 2.—J. W. Boy; profound apathetic idiot; mute; nineteen years of age; reached mental limit at fourteen; light brown hair; hazel eyes; sight and hearing apparently good; filthy in habits; unable to wash or dress—indeed, incapable of self-help in any way beyond feeding himself with a spoon. Is sluggish in habits. Came from almshouse, and but little is known of family history. The mother, lost sight of for years, is said to have had the same skin disease as the boy. The lesions are scattered thickly over the face, and are most prominent over the left forehead, side of face, and chin. There are three large waxy spots between the eyes, on the left side of nose, and in the left infra-orbital space. Two large confluent spots appear on the upper and lower rami of jaw.

Case 3.—W. S. Boy; idio-imbecile, thirteen years old; fifth child; born at full term; difficult labor, but non-instrumental delivery; nourished by mother, and was apparently a strong babe. Convulsions at six months, continued frequently up to the time he was two years of age, since which time there has been no return. Father a machinist and born in Ireland; mother born in England is subject to mild attacks of insanity; paternal grandfather died at forty years of age of gastric fever; paternal grandmother at sixty-five, of bronchitis; maternal grandmother living, was confined in an insane hospital for a time, and had a feeble-minded brother. W. has three brothers living, apparently sound and in good health; a sister died when six days old. W. is perfectly formed and skin is clean, with the exception of three warts on left hand. Light hair; blue eyes; sight, hearing, and gait good; slight paralysis on right side; speech imperfect, and vocabulary limited to a few words. Extremely nervous; unclean in habits. Excellent memory; powers of imitation good, and has a wonderful talent for music; can catch any tune that he hears but once, and can distinguish between a waltz, a two-step, a schottische, and a mazurka; sits and hums to himself all day. The adenoma sebaceum is well marked on face and has been present since birth. The lesions are brownish on nose and over eyes, red on cheeks, small confluent telangiectatic spot on left temple, two confluent spots on left frontal region, and large spot on right chin.

Case 4.—A. F. E. Boy; idio-imbecile; aged 18 years. Family history incomplete. Said to have been normal until the age of

two years, when an epileptic seizure occurred lasting six hours leaving the left side permanently paralyzed. Had spasms at regular intervals until the age of seven, when struck by a street-car; his head was seriously wounded, since which time there has been entire cessation of spasms. Power of attention slight; considerable desire to imitate, but without much success; memory extremely poor. No trace of moral sense. Rather large for his age; general health excellent; speaks a few sentences. The lesions are thickly scattered over cheeks and chin.

Case A.

Case B.

Case C.

IDIOTS — SUPERFICIAL EXCITABLE.

PLATE VIII.

CHAPTER XIV.

ILLUSTRATIVE CASES.

IDIOTS AND IDIO-IMBECILES.

IDIOTS: PROFOUND, APATHETIC—UNIMPROVABLE.

Case A.—C. E. Boy; six years old; a mute, incapable of self-help. Demands the same care as an infant. Was the fifth child, having two brothers and two sisters all normal. Born at full term; labor ordinary. The parents were each 30 years of age at time of this child's birth. Two years prior the father, a machinist, had received a severe blow on the head, and later becoming insane died in his thirty-fourth year of softening of the brain.

Case B.—R. C. Boy; six years old; a mute, helpless in every way. Born at full term, ordinary labor. Family history good, but mother had a severe mental shock four months previous to child's birth, and he himself a severe attack of spinal meningitis at 18 months. Father a machinist aged 32, and mother 21 at time of child's birth.

Case C.—C. B. Male; twenty-one years old. Semi-mute, speaking only a few short words; is helpless and unclean. Born at full term, ordinary labor. Had spasms at birth. Father 36 and mother 31 at time of birth.

IDIOTS: PROFOUND, EXCITABLE—UNIMPROVABLE.

Case A.—D. E. R. Boy; twelve years old. Red hair and blue eyes. A mute making cooing and crooning sounds when not excited and noisy. Unclean day and night. Incapable of self-help; cannot feed himself intelligently, yet carries everything he lays hold of to his mouth, seeming to have a peculiar facility in swallowing stones and buttons. At one time passed per rectum a piece of glass, a tack, a dress-hook, a button, 4 large nails, 3 pieces of nut shells, and 205 pebbles, ranging in size from a grape-seed to a shell-bark. A few hours later he swallowed 52 pebbles and a button, which he passed the following morning. At another time he swallowed 168 buttons and a tack. At still another time he swallowed and passed 41 buttons, 1 nail, an iron jack-stone, a ring and a stone.

Fifth in order of birth, first born of twins, with twin sister normal, living. Ordinary labor, nourished by mother. When 6 years old an attack of scarlet fever left him deaf, dumb, blind, and paralyzed. The mother, aged 39 at time of child's birth, had an epileptic sister. The father aged 44 when child was born, was a merchant of wealth and position, but addicted to the use of intoxicants and drugs; died from the effects of an overdose of opium.

Case B.—W. K. Male; aged 26 years; 5½ feet in height, and well proportioned; has a peculiar lurching walk. Eyes and hair dark brown. A mute but very noisy, chiefly from 3 to 5 o'clock in the morning. Barking like a dog, or roaring like an animal, he could easily be heard a quarter of a mile away. Will shout and growl at the sound of music. When excited will clasp hands and face, or throw up arms as if to strike. Tears food and eats like an animal; is particularly fond of rare meat. Can use spoon, but prefers fingers. Developed a sort of affection for his attendant and follows him around like a dog, rubbing against him and showing the satisfaction of an animal when petted. Knows his own room and bed, is fond of being alone, and is bestial and filthy in habits. At 2 years of age it was noticed that he was somewhat peculiar, and when 3 years old he fell backward into a tub of hot water and was severely scalded. Two brothers and 2 sisters living, all extremely nervous and one choreic.

Second child; labor difficult, but without instruments. Nourished by mother, who, always delicate, was 23 years old at time of child's birth. When 5 months advanced in pregnancy she was severely shocked at the sight of an idiot child. Father a farmer and a school teacher, aged 28, was wounded in Civil War and carries a ball in his body; suffers continually from neuralgia. Both parents have poor digestion. The mother has an idiot cousin, and the maternal grandmother died of phthisis.

Case C.—M. S. Boy; eight years old. A demi-microcephal and a semi-mute; with a shuffling gait common to his class. Nervous and excitable, music annoys him, causing him to jump and scream and to cover ears with hands as if to obstruct sound. Birth premature (8 months), nourished first by mother, and then by bottle. Second child. Has two brothers and one sister, all living and healthy. Parents were the same age—23 years—at birth of child, prior to which the mother, who suffered from sick headaches, was severely frightened at seeing one man try to shoot another. The father, a cigar-maker by trade, is extremely nervous.

Case D.—M. F. Girl; aged 13 years. A mute, unable to care for herself. Excitable, wild and noisy. Wanders restlessly to and fro, screaming and shouting.

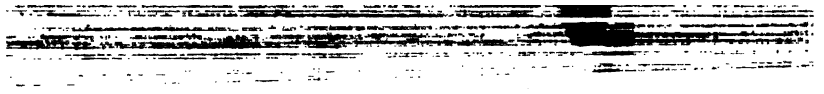
CASE B.

CASE C.

CASE D.

CASE E.

IDIOTS SAVANTS.



The first born child died at 6 months of pneumonia, the second was still-born, and the fourth, an epileptic, died of cholera infantum.

The paternal grandfather was a drunken epileptic; the father's brother and sister are feeble-minded and the mother has an epileptic sister.

Born at full term, labor easy, was the third-born of triplets. Father 29, and the mother 26 at time of child's birth; owing to husband's drunken habits, the mother was in an anxious, worried condition during pregnancy.

IDIOTS: SUPERFICIAL, APATHETIC—IMPROVABLE.

Case A.—P. R. Boy; 10 years old. Epileptic, slightly choreic; left-sided spastic hemiplegia. A mute; fond of children and of music, and understands simple commands. Has improved in matters of self-help; learned to dress and feed himself, and is more cleanly in habits.

He was the sixth child, born at full term; ordinary labor; nourished by mother. Father had a sister, a deaf-mute. Family history otherwise unknown.

Case B.—B. D. Girl; 12 years old; semi-mute of quiet habits, but a most violent temper when roused, and very profane. Was very unclean, but has improved, learning to wash, feed and care for herself. The first birth succeeding 3 miscarriages; labor ordinary. Nourished by mother who claims that she was subjected to anxiety and had not sufficient food during pregnancy. Father a laborer, drank moderately, but not to excess. B. had 7 sisters and one brother. Of 3 who were triplets, 1 died at birth, 1 in five weeks and 1 in six; the brother also died at birth; 4 sisters living and healthy.

Case C.—D. J. L. Boy; 14 years old. Obstinate, crying habitually and refusing to be pacified. A semi-mute, fond of mumbling to himself, while twisting and playing with strings. Became more cleanly in personal habits and able to aid in dressing himself, but would eat filth and garbage. Died of phthisis, the necropsy showed the stomach completely filled with a mass conforming to its configuration; this mass made up of sticks, stones, paper, bark, strings, and trash of every description. First child, born at full term. Labor difficult, but without instruments. Deficient animation at birth; was always a sickly baby; nourished by mother. Father 32 and mother 26 at birth of child. Mother extremely nervous during pregnancy. Maternal grandparents first cousins.

Case D.—A. D. Boy; 16 years old. A semi-mute, repeating only a few words, but able to make his wants known. Was always delicate—a case of *spina bifida*. Learned to feed himself and be-

came cleanly in habits. Tenth child, fifth son. Born at full term; labor not difficult, was a "water baby." Nourished by mother, who rambling and erratic, was destitute of the moral sense. When three months pregnant, while nursing her husband with a broken leg, she was forced to lift him frequently. Father then 45 and mother 37. Father a mason by trade, drank to excess and died two years later of dropsy. Of 10 children, 3 have died of consumption, 1 of abscess of the brain, 1 of epilepsy, and 2 of the diseases of childhood.

Case E.—C. R. Male; 23 years old. Listless, and appreciating little that was said to him. Improved in self-help and became cleanly in habits. When a boy, had a fall from a porch. Fifteenth child, born at full term, ordinary labor, nourished by mother, who, 34 years of age at time of child's birth, had afterwards 6 miscarriages.

All the 12 children living are more or less mentally defective; 3 children died—2 of premature birth, and 1 of pneumonia. Father a laborer, was 36 at time of child's birth.

Case F.—J. C. W. Boy; 18 years old. Shuffling gait, drooling mouth. After 5 years of persistent care, became cleanly in habits and could make his wants known; learned to feed and partially to dress himself. J. is the fourth born; labor difficult, with instruments.

During the fourth month of pregnancy, the mother was profoundly shocked by seeing her mother almost torn to pieces.

The father, a moulder, drank occasionally.

IDIOTS: SUPERFICIAL, EXCITABLE—IMPROVABLE.

Case A.—A. P. Boy; 7 years old. A mute; understands what goes on about him. Sight and hearing good. Was extremely nervous and in perpetual motion, and very unclean. Was incapable of self-help, but has become more cleanly in habits and less restless.

Had frequent falls in infancy and when 2 years old was run over by a milk wagon. Sixth born. Difficult labor with instruments; nourished by mother; 4 sisters living; 1 brother dead-born. Father had an epileptic brother. Father 35, and mother 33 at time of A.'s birth.

Case B.—A. B. Boy; 7 years old. Semi-mute. Restless, nervous, filthy in habits, needing constant care. Sits the entire day repeating to himself or singing fragments of nursery rhymes, which he once knew perfectly. Was a sort of infant prodigy in a musical way. Became less restless and more cleanly, but has so deteriorated mentally that he does not even recognize his mother after a few days' separation. Father a railroad man, was 31, and mother 29, at time of child's birth. Mother melancholy during pregnancy with this her first child. Difficult labor with instruments. Spasms 3 days after

birth and was always a feeble infant. Nourished by mother for two months. Family history good, except that maternal aunt was epileptic.

Case C.—J. D. Boy; 10 years old. Semi-mute, understanding all that is said to him. Extremely nervous, passionate, vulgar and unclean. Has learned to feed himself and become more cleanly, but is very destructive—constantly tearing his clothing. J. was the first child born at full term, ordinary labor, nourished by mother. Had spasms when a baby. One brother and one sister living, both normal. This a case of congenital syphilis. Paternal grandfather died of cancer, and maternal grandfather of apoplexy.

Case D.—F. T. Boy; 5 years old. Epileptic. A mute, but could understand and respond to signs and motions. Obstinate and sulky. Sent to training class; made very slight progress. Gradually learned to feed himself and to become more cleanly in habits, but as spasms increased, became destructive, tearing his clothing, etc. Would eat garbage of every description. Died during an epileptic seizure.

Is the illegitimate child of a low-grade imbecile woman.

Case E.—A. F. Boy; 13 years old. An epileptic with spasms at long intervals. Recognizes ordinary things about him; speaks a few words with very indistinct enunciation. Has learned to feed, dress and undress himself with some assistance, and there has been gradual improvement in habits of self-help and cleanliness. At times is very excitable. A mere pigmy of a child, was born in the almshouse. Labor difficult; the mother, 27 years of age, became helpless two years prior to her death from a stroke of paralysis. The father, age unknown, died within a year after the child's birth with tumor of the stomach accompanied with spasms. A. has 1 sister living, said to be normal.

Case F.—L. M. Male; 22 years old; a mute, nervous and restless. Very unclean, unable to wash, dress, or care for himself; gradually, after prolonged care, became capable of self-help. Fifth child born at full term. Labor ordinary. Nourished by mother. Father drank moderately, and mother was a moderate smoker. There were 2 children still-born.

Case G.—J. W. Boy; 11 years old. Bright-faced, well formed and physically sound, except that he is a semi-mute. Active, restless, and inquisitive, snatching at everything that attracts his attention. Lawless and cruel to other children. At 4½ years, when first under training, was never quiet. Has learned to feed and partially dress himself and has become more cleanly in habits. Still very destructive, tearing and chewing his clothes.

Born at full term without instruments; nourished by mother who was 22 and the father 26 at time of birth. The father de-

serted the mother in the early months of pregnancy, causing her much anxiety and forcing her to seek employment. The child when a baby fell in a coal-scuttle, striking his head. Both father and mother were drunkards.

Case H.—W. H. Boy; 16 years old. Nervous, noisy, although a semi-mute. In training class learned to string beads, sew cards, to recognize a ball, and to play with a wagon. Is quarrelsome and in attacks of temper will tear his clothing and fight other children, becoming more destructive and violent as he grows older. Has improved in habits of self-help. Was the second of 8 children, the fifth being also an idiot. Was a "blue baby." Labor difficult but without instruments. Father 26 and mother 21 at time of birth; both nervous prior to child's birth. Mother an imbecile. Father a machinist by trade, drank moderately; had one brother an imbecile epileptic, and two other brothers who died of consumption. Mother was subject to neuralgia, and her sister who is choreic, has one child, a mute.

Case I.—T. H. Boy; 12 years old, a semi-mute (brother of W. H.). Has gradually picked up disconnected words which he repeats in parrot-like fashion. Is very destructive, tearing and chewing his clothing and beating himself. Is fond of playing with blocks and balls, but is cross to other children. Was unclean both day and night, but has improved in habits of self-help. The fifth child born as above noted.

IDIO-IMBECILES.

TRAINABLE IN VERY LIMITED DEGREE TO AID IN CARE OF OTHERS.

Case A.—W. T. Y. Boy; 10 years old when photograph was taken. Speaking only a few words, but understanding simple language; was self-willed, obstinate, very abusive, quarreling and fighting with other children, and in violent temper would attack anyone. Improved in self-help and cleanliness, and in use of hands; learning to knit, became a dependable aid in keeping up the supply of children's caps. Is the one alluded to in the chapter on training, as learning first to tear strips, then to draw threads and finally to knit.

Second child, labor ordinary; nourished by mother. Father 35, mother 18 at the time of birth. Father smoked and drank moderately. Condition attributed to a fall and concussion of brain when two years old. One brother and two sisters living and healthy.

Case B.—J. S. Boy; aged 8 years; mute, making his wants known by signs. Had bad habits when he entered the Training School, but in three years had improved markedly, becoming quite helpful in dormitory work, running errands, etc. Nothing is known of family history.

Case C.—L. F. Girl; 7 years old. At 6 years was small pale-faced child with dark hair and blue eyes. Very little power of speech and enunciation defective. Understands simple language. Has the habit of "Dervish spinning"—which Dr. S. Weir Mitchell describes under "Rotary Movements"—when she will twirl on her heels for 25 minutes without stopping and then reversing, continue with no evidence of dizziness.

Was nervous and restless in school and occasionally naughty. Was very obstinate, but has improved in disposition and become cleanly in habits. In training class, learned to knit and sew a little. Can plait a rope mat and is quite helpful in dormitory work. Her chief recreation is the spinning above mentioned.

First child, born at full term, ordinary labor. Nourished by mother for 3 months and then by maternal grandmother for 7. Was a sickly child, having spasms. Father a carpenter, aged 30, and mother 19 at birth of child. Father addicted to the use of tobacco and liquor. Mother severely abused by father. L. has a brother and sister living; the sister also feeble-minded, a girl of high grade. One sister died in convulsions. Both grandfathers are drunkards.

Case D.—S. L. Male; a semi-mute, aged 24 years, very clever in the use of signs. Thus, he describes a man with a beard by stroking an imaginary beard, with his hands; a book-keeper, by the motions of writing, and a boy to whom he has taken a dislike, by putting his hands behind his ears and "hehawing" like a donkey. Was an adroit thief, and would steal anything he could lay his hands on. When provoked, bit savagely. Could run errands, fetch water and became an excellent outside worker with pick and shovel, over-exerting himself unless carefully looked after. Was pleased with any little trifle in the form of a gay ribbon, a cheap pin, a bit of candy, etc.

Family history negative.

Case E.—H. L. Boy; 11 years old when photograph was taken. Admitted to Training School when 5 years old. Blue eyes, light hair, sight and hearing defective. A semi-mute speaking only a few words. Self-willed, quick-tempered, unable to care for himself. Uncleanly night and day. Fond of music and of animals. In training class, made some little progress; learned to comprehend what was said to him; to put nails in nail-board, to string buttons and beads, and to follow drill, and to talk a little. Improved in habits of self-help and cleanliness, and became quite helpful in dormitory and as an aid in care of other children. Nothing known of family history.

CHAPTER XV.

ILLUSTRATIVE CASES (*continued*).

IMBECILES: LOW-GRADE; MIDDLE-GRADE; HIGH-GRADE.

LOW-GRADE IMBECILES: TRAINABLE IN INDUSTRIAL AND SIMPLEST MANUAL OCCUPATIONS.

Case A.—S. H. Boy; 14 years old. Blue eyes, light hair. Sight and hearing good. Speaks in broken sentences. Unable to wash and dress himself. Cleanly in habits. Entered kindergarten at 9 years. Was fond of drawing on the slate but slow in hand-work; restless and talkative. Learned to dress and care for himself and became a useful aid in the kitchen, dormitory, and general housework. Eighth child, born at full term, ordinary labor, nourished by mother. Had spasms soon after birth. Mother extremely nervous, was overtaxed in mind and body during pregnancy. Father an engineer, drank and suffered from neuralgia, and finally became insane. S. has 1 brother living also feeble-minded, and 3 brothers and 3 sisters dead.

Case B.—H. H. Boy; 13 years old. Has a bright face and is well-formed. Is extremely timid and easily thrown into paroxysms of fright. Hands and feet always moist, amounting to osmidrosis. Entered school in his eleventh year, but made little progress except that he learned to draw, to color and to count, and improved physically from the drills. Engaged in household service, is a good steady, quiet worker.

Fifth child, born at full term; nourished by mother. Father a farmer, 33, and mother 30, at time of birth; 2 brothers and 3 sisters living, sound in body and mind. Paternal grandfather died of consumption.

Case C.—A. W. Male; 41 years old. Incapable of being benefited by school. Made a fairly good farm hand and was contented and happy. Third child, born at full term, nourished by mother. Father a merchant, a drunkard and really feeble-minded; was 32 and mother 28 at time of A.'s birth, prior to which both parents were greatly over-taxed. Of 4 living children, beside A., 2 are feeble-minded. A child died of meningitis. The mother's 3 sisters have feeble-minded children, and the family connection shows not less than 82 insane and feeble-minded.

Case D.—P. C. Male; 31 years old. Ordinary school methods offering practically nothing to him, his training has been purely on industrial lines. A skilled worker in the laundry, is neat and dependable in household service, and quite deft with his hands; does some intricate carving in his own peculiar way. An adroit thief, he steals simply for the pleasure of stealing, the things he takes being valueless to him. Very egotistic, he will do anything to attract attention; thus, some years ago he deliberately jumped into a vat of lye, and was quite severely burned, losing all his hair, and is extremely proud of his bald head. Usually affectionate and docile, he is at times stubborn and hard to manage. Is slow to anger, but has a violent temper when roused. Family history unknown.

Case E.—C. C. Male; 21 years old. Large and overgrown; really a big baby. Halting gait, defective articulation, speaking only a few words, but can imitate animal cries. Cleanly in habits, improved in self-help, learned to do a little housework and became a fairly good worker. Father a photographer, aged 39, and mother also 39, at time of birth. Eighth child, born at full term, ordinary labor; nourished by mother. Has 4 brothers sound in mind and body. Maternal grandfather died of phthisis.

MIDDLE-GRADE IMBECILES: TRAINABLE IN MANUAL ARTS AND SIMPLEST MENTAL ACQUIREMENTS.

Case A.—A. B. Boy; 13 years old. A type of many to be seen every day. Black hair and eyes, clear complexion. Sight and hearing perfect. Defective articulation and limited vocabulary, but apt in using signs. Left-handed. Affectionate and truthful, is active, fearless and heedless of danger. Cleanly in habits, recognizes primary colors, and knows alphabet. Counts readily to a hundred. Can wash, dress and care for himself in every way, is a useful aid, and finds his happiness in housework. Under special training might learn to read and write, but the knowledge would be of no use to him. Father, a farmer, aged 31 and mother 25, at birth of child. Born at full term; ordinary labor; second child. A brother, 1 year old, died of meningitis. Paternal grandparents second cousins.

Case B.—S. Y. Boy; 11 years old. Light hair, brown eyes, sight and hearing normal. Well-formed. Slight difficulty in articulation, but a good vocabulary. Cleanly in habits; could wash, dress, and care for himself and do simple housework. Knew nothing of alphabet, but could count very well. Entered the kindergarten and did good work, except that he was lazy and needed constant "pushing." Very awkward at first in military drill, but improving, was promoted and became an orderly. Approaching the age of puberty

he became obscene, disobedient, untruthful, and a ring-leader of disorder in his club. When rebuked, would weep copiously and promise not to offend again, but would immediately disobey; his sweet face and gentle manner would frequently deceive those in charge. Later, made marked improvement and became an interesting, affectionate boy, always longing for and dreaming of a mother whom he found eventually after many years. He became a fair musician and a good tailor. Father an insane epileptic, a day-laborer, was 30 years and mother 25, at time of S.'s birth.

Case C.—G. G. Boy; imbecile, about 19 years old. Was dwarfed in stature, but physically well-formed. Speech fair with a slight German accent. Learned to work quite well on the farm and was useful in the commissary department, distributing provisions. Disobedient, unreliable, and undependable. Finally found his father and went out in the world to make a living; will probably drift into the dependent ranks. Almost nothing known of family.

Case D.—H. B. Boy; 19 years old. Red hair, blue eyes, and fair complexion. Came to Pennsylvania Training School when about 10 years old; was quite a bright boy in many ways; went to school regularly, learned to read and write, could sing, was fond of animals, and became very useful as an aid in the kitchen and in dormitory work. Was untruthful, erratic, dishonest and unreliable, but not a moral imbecile. Second child; born at full term; ordinary labor; nourished by mother, who, an imbecile, was between 21 and 24 years of age at time of child's birth. Mother was scrofulous, and child also in a marked degree. Child was illegitimate, and the woman's father, who was a drunkard, is supposed to be the father of the child.

Case E.—F. B. Boy; 9 years old. At 5 years, was small, well-formed, light hair, blue eyes; was cleanly in habits, and spoke quite distinctly. Gentle, obedient, quiet, indolent; absolutely without fear. Powers of attention, imitation, and memory fair. In school learned to read, write and cipher, and was excellent in military drill. Later became restless and erratic, and having reached his limit in school, was finally taken out as an aid in the sewing room and laundry, where he distributes clothing, darns stockings, runs errands, etc., always under supervision. Almost nothing is known of family history, except that the father was a janitor in the alms-house.

Case F.—C. P. Girl; 9 years of age. Light hair and gray eyes, near-sighted, but hearing good. Imperative movements of head—myospasmus. Learned to read and write, and use her hands, and made marked improvement, but is phthisical and very delicate.

Father, a miner, aged 21 years and mother 30, when child was born.

Case G.—J. N. Boy; 14 years old when photograph was taken.

Strong and healthy. Dark skin, black eyes, and freckled face. Read simple sentences very well, and wrote words of two and three letters; could count and make figures fairly well. Was very troublesome, disobedient, and a trial to every one with whom he came in contact. Made marked improvement in school; learning to knit and sew and to play very well on the cornet, but lacked application, and was erratic and lazy. Did well in military drill, but finally became so rough with the other children that he was transferred to stable work, where he seemed to be in his element. Made an excellent groom and stable boy, and gave not the slightest trouble. In his seventeenth year was removed. During the Spanish-American War, he entered the army, served with credit, and was honorably discharged. Nothing is known of family history.

Case H.—J. M. Boy; aged 9 years. Came to us when 5 years old, a light-haired, blue-eyed baby in dresses. Began to string beads and to play with buttons. Sent first to kindergarten, and then to school; continued to improve, learning to read and write fairly well. Is now 19 years old, has made steady progress and is a useful orderly in the hospital. A waif and stray; nothing is known of family history.

Case I.—W. M. Boy; 17 years old. Light hair, blue eyes, sight and hearing perfect, but speech slightly defective, and vocabulary limited. Had spasms at one and a half years. These continued until he was 4 years old and then ceased. Occasionally unclean at night. Fond of children, music, animals, but knew nothing of color and form; went regularly to school and made some little improvement. Learned to read and could write a fair letter. Worked on the farm and was a good milker, trucker, etc. Is now making an honest living at good wages.

Third child; prolonged labor; nourished by mother, who during gestation was over-worked and sustained a severe fall. Father a house-painter, aged 26, and mother 28, at time of child's birth. Paternal grandfather died of phthisis.

Case J.—J. B. Boy; aged 14 years. Small, red-faced, hearing and gait good, but slow in movements; sight imperfect; eyes are rather small and weak. At 9 years could talk very little. Sent regularly to school and did excellent work. Was trustworthy, but at times obstinate and disobedient, and would fly into a temper on slight provocation. Upon reaching his limit in school he was placed in tailor shop, for which work he displayed a decided aptitude, making button-holes, and using the sewing-machine; was also a useful aid in dining-room and dormitory. Nothing is known of family.

HIGH-GRADE IMBECILES: TRAINABLE IN MANUAL AND INTELLECTUAL ARTS.

Case A.—A. S. Boy; aged 16 years, with the intelligence of a normal child of 12. Powers of attention and imitation fair. Excellent memory. Does not care for study, but is fond of reading boys' books. Has a clear high tenor voice and is interested in athletics. Clever with his hands—a ready type-setter; a good cornetist and fond of active employment. Obedient and affectionate, is a remarkably clean-minded, wholesome boy, with an attractive personality.

Father, a printer, aged 28, and mother 25, at time of child's birth. Second child; born at full term; difficult labor; fed artificially; sickly infant. Mother much prostrated in fifth month of gestation, by death of brother. Father died of phthisis.

Case B.—M. S. Female; aged 20 when photograph was taken. Brown hair and eyes. Sight slightly defective. Distinct enunciation and excellent vocabulary; can read and write; is very deft with her hands—excellent in sloyd work, embroidery, a good seamstress and housemaid. Father a laborer, and below par mentally.

Case C.—H. R. Boy; 5 years old. A perfect baby in every way. Can speak only a few words, but understands all that is said to him. Powers of attention, imitation, and memory all good. At two and one half years was unable to do anything for himself. Sent to kindergarten, has become interested, learning to sort colors, weave mats, lace cards, march, and has added to his vocabulary and sings quite well. Occasionally obstinate, is generally obedient and manageable. Nothing known of family history.

Case D.—J. A. Boy; aged 11 years. A very delicate child, sweet-faced and serious, rather tall, with blue eyes, light hair, and heavy eyelids, good strong hands and a steady gait. Speech quite imperfect. Is cleanly in habits. Had epilepsy from fifth month to third year, but no attacks since. In his ninth year, he knew but little. Two years under special training, made wonderful progress in reading, writing, and arithmetic. Not truthful nor altogether honest; obstinate and occasionally difficult to control in school.

Father, a carriage painter, aged 24 years and mother 23, at the time of child's birth. First born; ordinary labor; mother was worried all during pregnancy.

Case E.—V. D. M. Boy; aged 12 years. Light brown hair, blue eyes, and fine teeth. Speech perfect; near-sighted. When six years old, knew alphabet and could count to fifty, and sang all the popular songs. Powers of attention, imitation, and memory good. Was a very slow child and needed special training. A gentle, lovable boy whose pleasant ways and affectionate disposition made him a

favorite with everyone. Was extremely generous. In kindergarten, his hand-work was beautiful. Learned to read, write, draw, and to embroider. Improved steadily; developed a clear tenor voice, and was a fair violinist.

Father was a gilder, aged 40 and mother 32 at time of V.'s birth. Was the second child, ordinary labor, and has a brother also feeble-minded. Mother a neurotic. Paternal grandfather and paternal grandmother both died of phthisis. Maternal grandfather died of congestion of the brain.

Case F.—R. E. Boy; 12 years old when photograph was taken. Well-formed, sight and hearing slightly defective. Was a dreamy boy, with a peculiar stubborn disposition, somewhat lazy, but interested in certain things. Did well through primary-school course. Learned to read, and to write a good letter. Developed decided talent for music; had a good baritone voice and played well on both trombone and baritone horn. Trained in carpentry, was slow but neat, and did excellent work. Absolutely truthful and trustworthy; developed a gentle and lovable disposition. Very sensitive, and resenting any supposed slight, when once he took a dislike, did not easily overcome the prejudice. Remarkably successful in the cultivation of flowers, showed considerable ability as a gardener. When 22 years old he went out into the world, and has made an excellent living, utilizing all his acquirements as carpenter, florist, and musician. Nothing is known of family history except that his father was a drunkard.

Case G.—O. F. Male; 21 years old when photograph was taken. Came to us in his sixteenth year, a strong, healthy boy, brown hair and blue eyes, good figure, wrote a very good hand and could read, although he did not care for books. Was a most consummate liar, an egotist, fond of telling stories of his own achievements; he could not lie logically, however, and would break down when cornered. A bully and a coward. He had delusions, imagining himself at one time a detective. Was fond of military drill and eventually became a captain in our military company. Fond of music, had quite a good voice, practiced for a while on the cornet, but losing interest, gave it up. Had had some training as a baker in an orphanage which training continued with us. He became in his twenty-sixth year our head baker with 5 boys under him, of which he was very proud. Did excellent work for a while, using not less than 30 barrels of flour a week.

One Christmas morning, being enraged with the housekeeper for some trifling cause, he put out all the fires, delaying the house movement for the entire day. Losing interest after this, and neglecting his work, he was transferred to the carpenter shop, where he did

very well. Going out in his thirtieth year, he worked at his old trade for a season at one of the summer resorts, and in a few months saved and invested $70.

Has now entered the Marine Service, and is doing well.

Second child; born at full term; ordinary labor. Mother, much worried during the last 3 months of pregnancy, and nursing her mother, was overtaxed in body and mind. Died 3 years later of phthisis. Father was 28 and mother 26, at time of O.'s birth. The maternal grandfather was a drunkard; the paternal grandfather, who died of phthisis, had an insane brother.

Case H.—L. H. Boy; aged 13 years when photograph was taken. Came under my care at 10 years. A delicate child, needing careful attention. Brown hair and dark eyes. Was near-sighted and slightly deaf. Slow mentally, yet under training he accomplished in 10 years the ordinary school intermediate course, and gained considerable proficiency also, in free-hand drawing, in water color, in designing, and in wood carving. Did beautiful work in sloyd, building and carving furniture—chairs, tabourettes, etc. Fond of music, became an excellent violinist. A fair mechanic, is now earning a good living.

Only child; born at full term; ordinary labor. Was unusually small at birth.

Father a drunkard, and treating his wife badly, was 25, and mother 26, at time of child's birth. Mother working hard, had much anxiety during gestation. Phthisis heredity in family.

Case I.—G. B. Boy; came to us a bright little fellow of eight years, who had received some training in a day-nursery kindergarten, but got more on the streets. Powers of attention, imitation, and memory excellent. Had a good singing voice, a clear treble, and sang all the songs of the day. Was erratic, restless, and it was very difficult to keep him interested in anything for more than a few moments at a time. Incapable of fear, always eager for a fight, would attack a boy twice his size. Knew alphabet, and recognized color and form, and could draw well. Cleanly in habits and capable of self-help. Was obstinate, passionate, vulgar and profane. Responding gradually to refined environment, did excellent work in the kindergarten, learning to march, to read, and to write fairly well, in two years. Transferred to school, is quick to grasp and to understand. Is learning to control temper, is very affectionate and clean, and seems to have forgotten much of his old vulgarity and profanity.

Seventh child, born at full term; ordinary labor; fed artificially. Father a laborer, aged 32, and mother same age, at time of child's birth. Phthisis in father's family. The mother a most immoral woman; a street walker. Environment the very worst—the entire

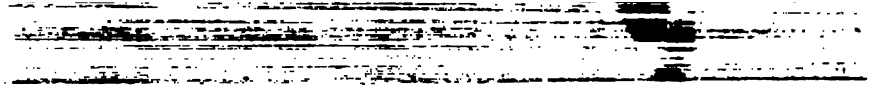
Case G.

Case H.

IDIOTS SAVANTS.

Case H.

PLATE XLV



family living in a room twelve by fifteen, its only window opening into a narrow dark passage. Mother and father both drunkards; mother would pawn or sell children's clothing given in charity, to obtain liquor. Mother and oldest sister were sent to House of Correction for administering "knock-out drops" to a man. The girl, aged fourteen, told how she could decoy a man into the room, drop the chloral or "snuff" into his beer or whiskey, and then go through his pockets, knowing just where men usually keep their money.

A brother and 2 sisters living—1 sister a low-grade imbecile and the other a moral imbecile.

Case J.—J. A. G. Boy; aged 10 years. Brown hair and eyes. Sight and hearing normal. Could read, write, and cipher and recognize color and form. Tidy in dress and cleanly in habits. Powers of attention, imitation, and memory fair. Did excellent work in the kindergarten. Had defective articulation, substituting f for p, saying, for instance "flease" for please, and dropping r, as in "dink" for drink. Was lazy and inattentive, but has a talent for drawing and is now making marked improvement.

First born of twins; labor ordinary; fed artificially; mother deficient mentally, has an epileptic brother. Father, a railroad man, aged 26 and mother 25 at time of A.'s birth.

CHAPTER XVI.

ILLUSTRATIVE CASES (*continued*). MORAL IMBECILES.

LOW-GRADE MORAL IMBECILES: TRAINABLE IN INDUSTRIAL OCCUPATIONS. TEMPERAMENT BESTIAL.

Case A.—H. T. Boy; aged 15 years, dark brown hair and eyes. Speaks but a few words, and enunciation very imperfect. Choreic movements of hands and face. Had epilepsy when 4 months old; spasms lasted until sixth year, and then began to diminish in force and frequency, only to grow more severe again. Sent to school. Learned to match colors, and sew cards; a ready helper in arranging material, quick to learn the proper places for things. Caught a tune easily and sang the songs, but with very imperfect words. Became so quarrelsome that he could not be kept in school—biting, scratching, and fighting; had a habit of kicking children in the stomach and struck a blow like a sledge-hammer. Was an adroit thief, stealing in the most ingenious manner. Most immoral in every way and had to be kept in restraint much of the time. Learned to do simple housework very well, but became so violent and dangerous that he was transferred to an insane hospital.

Father a very passionate man; mother extremely nervous; had two miscarriages; H. born at full term, ordinary labor. Father, a shoemaker, aged 24 and mother 20, at time of child's birth.

Case B.—D. T. Boy; 12 years old; epileptic, ignorant, undisciplined, and a runaway. Has no respect for anything or anybody. Language and actions most foul and vile, of which there are frequent outbreaks, without the slightest provocation. Can sing a few vulgar songs. Is a great egotist; hard to manage, brutal and cruel to other children; destructive, a liar, and a thief. Unable to read or write. Can render slight assistance in dormitory work.

Father, a Welsh miner, aged 27, and mother 34, at time of D.'s birth. Mother and one sister died of phthisis.

Case C.—W. J. F. Boy; aged 11 years; small for his age, epileptic, untruthful, vulgar, profane, cruel and brutal; an adroit thief. Heedless of danger and insensitive to pain, he climbed out of a third-story window and fell to the ground, striking his head, but was only slightly stunned. Knew alphabet, and could sing, dance, and pray; would repeat long Latin prayers, cross himself, and make vulgar remarks and swear, almost in the same breath. Absolutely devoid

of the moral sense, it was impossible to teach him to obey or to keep him out of mischief.

Fourth born, at full term and in ordinary labor; nourished by mother. Has 4 brothers and 1 sister living. Father a gas-fitter, was 30 years of age, and mother 25, at birth of child. Mother's 2 sisters died of phthisis.

Case D.—A. S. Male; aged 22, with a deprecating almost pathetic expression of countenance, soft voice and gentle confiding manner. A sneak, and absolutely untrustworthy. When fully aroused, may be violent and even dangerous. An excellent worker in dining-room and laundry, understanding thoroughly the machines in use. An adroit thief and an accomplished liar. On one occasion when he was preparing for a visit home, a twenty-dollar note belonging to one of his attendants disappeared. Prior to leaving the house the boy was carefully searched but nothing was found. Within ten minutes, on his way to the station, he was recalled for another examination and stripped to his shoes and stockings, I even running my hands over the latter without detecting anything. As he left the room, with tears and protestations of innocence, he could not resist giving me a sly, shifting look, and a glance at his leg. Turning down the stocking, there, plastered to the leg, the money was found.

Stamps, paper, pens, and pen-holders disappeared from my desk and could not be traced. Some eight years after, searching his box for something, these were found securely packed away under a false bottom. The singular part of it all was that my office was inaccessible, and in all these years he never had been seen anywhere in the building. These are only examples of his many depredations.

Family history indefinite, except that the father, an old man who had married a young imbecile woman died of old age 2 years after child's birth. The boy himself, when 2 years of age, was run over by a street car.

Case E.—R. W. Boy; 14 years old. Under training became quite efficient in household service; but disobedient, hard to manage, and an incorrigible thief, stole even from himself. Thus, some years ago he came into possession, to his great delight, of a toy—a little rubber toad. In a few minutes however, the toy disappeared. He screamed, cried, and protested that some one had stolen it. Upon investigation it was discovered securely tucked away in his glove. He had secreted it—stolen it from himself—simply to create excitement.

R. was born at full term; ordinary labor. There were 4 or 5 children; 2 sisters living; 1 boy next older than R., an idiot, was killed by the cars. Mother, imbecile, 45 when child was born; father, a day laborer, age unknown. Mother had 2 feeble-minded sisters, 1

of whom had an illegitimate feeble-minded son, whose father was also feeble-minded.

Case F.—J. D. Boy; 15 years old. Both sight and hearing good, but articulation poor. Sly, stubborn, with violent temper; cruel and brutal to other children. Did excellent work in the kindergarten, and in training class learned to use his hands, to knit and to cane chairs. An adroit thief, unmanageable, gave trouble to every one with whom he came in contact. Family history unknown.

Case G.—I. D. Boy; 14 years old, a brother to the foregoing boy. Improved considerably under training in hand-work; learned to knit quite well and assist in dormitory, but was profane, vulgar, brutal, cruel to the other children and, like his brother, a constant source of trouble.

Case H.—G. A. Boy; aged 10 years when photograph was taken. An adroit thief, an accomplished liar, brutal, cruel, and dangerous to smaller boys. In training class learned to knit and darn stockings. Was very deft with hands but too dangerous a character to be trusted with tools. Could pick any lock. Under supervision was fairly good at both farm and house-work.

Enticed away at 18 years, he disappeared for 5 years, and drifting from farm to farm, giving unlimited trouble, finally in a spirit of revenge, set fire to a barn and was arrested. During trial he confessed to no less than 50 burglaries, many of which had for a long time baffled the detectives.

A waif and stray; nothing is known of family history.

Middle-Grade Moral Imbeciles: trainable in industrial and manual occupations. Plotters of mischief.

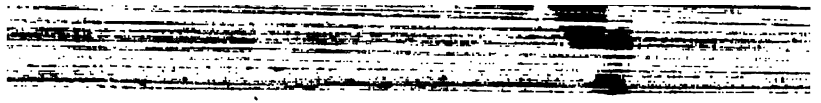
Case A.—T. F. Boy; aged 13 years. Brown hair and eyes and prominent teeth; enunciation distinct and good vocabulary. Choreic movements of face. Had spasms when three years old, but none since. Cleanly in habits. Powers of attention and imitation fair. Memory poor. Recognizes form and color; can read and count a little. Capable of self-help and can aid in dormitory. In training class learned to knit intricate patterns which fortunately keeps his mischievous fingers employed. Absolutely without affection, he is vicious, vulgar and brutal, delighting in screaming and yelling at top of his voice for hours. An adroit thief and a clever schemer, he tells lies with such an air of truth that it is hard not to credit what he says. We have not attempted to educate him, assured that every mental acquirement would be prostituted to evil purposes, and there is no hope of reformation, for there is no moral sense to appeal to.

CASE A.

CASE B.

CASE C.

CASE D.



First-born, nourished by mother. Father, a tailor, aged 23, and mother 25, when child was born. Maternal grandfather died of phthisis.

Case B.—M. T. Boy; 11 years old. Bright in many ways, but impertinent, vulgar, obscene, and hard to manage. Recognized color and form, but knew nothing of the alphabet. Said: "There's something in my brain that keeps me from getting smart." Given a fair trial in kindergarten, was so brutal to little children that he had to be removed. In the school he proved an element equally disturbing, using everything he gained as an instrument of ill; the more he knew the worse he grew, becoming absolutely lawless and incorrigible.

Epilepsy also developed and with recurrence of spasms, his attacks of temper became so violent as to necessitate removal to strict custodial care, to prevent him harming himself and others.

Third child; born at full term; difficult labor, but no instruments. Has 2 brothers and 1 sister living, normal. Father, an engineer, a dipsomaniac, aged 34, and mother 25, when M. was born.

Case C.—S. G. Boy; aged 10 years when photograph was taken. Stout and sturdy build. Head rather large. Blue eyes and light hair; sight and hearing good, but speech imperfect. Quite affectionate, but untruthful and untrustworthy. In kindergarten, learned to use his hands quite well, and to read, but was lazy, inattentive, disobedient, and sullen. Transferred to school, improved, but teased the younger children. Trained in housework, began to steal, putting the blame always most adroitly on another. Articulation improved, acquired an excellent vocabulary, and developed a good singing voice; learned to play on cornet, and, a member of the band, became less sullen and appeared to improve morally. At 16 years of age the cloven foot again began to show itself, and once more he was lazy, disobedient, dishonest, and untruthful, and in addition he became a sexual pervert, in filthy practices utterly shameless. Tried in various trades, he did very well in cooking-class, and as a kitchen scullion. Deft with hands, he proved in turn a fair baker, tailor, gardener and house painter; but everywhere lazy, untrustworthy, and tricky, was finally transferred to a custodial building. Here, absolutely ammoral, his record at the end of three years is "a moral imbecile of the most pronounced type, of middle grade; an accomplished liar, an adroit thief, a sexual pervert, brutal and cruel in every respect." This at 19 years of age. His capabilities as an aid had, notwithstanding this, gradually procured for him a certain amount of liberty, although under general supervision.

This same year a fire occurred, evidently the work of an incendiary; a large barn filled with hay in close proximity to the build-

ings. The children gathered in the large hall, were engaged in their evening games, when S. suddenly ran in and gave the alarm of fire. The larger boys, quickly detailed as a bucket brigade, rendered efficient service. In the midst of the excitement as I passed S. he gave me a furtive glance and stepped back with an air of concealment which aroused my suspicions, as there was no reason why he should have avoided me. The following day one of the men told me that he had seen S. near the barn just before the alarm was given. Interrogated, the boy denied all knowledge of the affair, first weeping and then indignant that he should be suspected. His vociferous denials however, had not the ring of truth, so I placed him in a room adjoining that of a comrade and stationed an employee on guard to await developments. The confession was overheard: how he had found an explosive match—probably dropped by a chance visitor; how he had guarded it for days, and finally watching his opportunity, struck it and threw it in the barn, fanned the flame and closed the door when the hay began to burn; how he then sat on the bank until he was sure it was well ablaze, and then gave the alarm. When confronted with his statement, he broke down and made a full confession. Removed to an insane hospital, he was after several years released, and is now a tramp, capable of perpetrating any act of violence.

The boy was a foundling; the mother, feeble-minded, disappeared after leaving him at a charitable institution.

Case D.—H. P. Boy; 13 years old. Capable of discriminating between right and wrong, but generally prefers wrong. Restless and undisciplined to the verge of savageness. An ego-maniac, will scratch and bite himself to create sympathy, and will do anything to attract attention, especially in the presence of strangers; will often throw up his hands and say, with the tears he can always summon at will: "Oh Doctor, I do want to be liked"; in another minute he will be laughing. Has the nasty habit of spitting on his hands and rubbing them over his face. A lord of misrule in the school, he was transferred to a custodial building. Here with less to excite him, he has improved mentally; learned to knit caps, scarfs, and shawls, but will destroy them if not watched. A desperate liar, an adroit thief, a clever pick-pocket, and a mischief-maker, he is always fighting. Cruel, brutal, and extraordinarily jealous, he is, when roused, very dangerous to other children. Ordinarily defiant, impudent, and disobedient, he can be at times sweet-mannered and engaging, but his moods change quickly and he is treacherous and untrustworthy. His teacher one day charged him with a message to his attendant to the effect that for some misdemeanor, he was to be disciplined by having only bread and milk for his dinner. Knowing the woman

to be devoted to birds, he told her that the teacher had sent her word that she had a beautiful bird in a wire cage for her, and went on to describe both cage and bird so graphically that she gave him an extra good dinner for his good news. When confronted by his teacher and the woman to whom he had lied, he denied point blank ever having delivered any such message; nor could threats or bribes bring him to a confession.

A knowledge of reading and writing would materially increase his power of evil doing. A capable worker, either as a farm laborer or in household service, he will nevertheless always be a fire-brand, wherever placed, and should always be under strict custodial care.

Third child born; nourished by mother; difficult labor with instruments. Both parents imbecile and intemperate. Father, a laborer, aged 35, and mother 32, at time of H.'s birth. Has a sister and brother also feeble-minded.

Case E.—F. C. Boy; 13 years old when photograph was taken. F. was such an excitable infant that he was kept under the influence of opiates up to 11 months, when he was adopted by some benevolent people in good circumstances. When 6 years old began to give trouble; was vicious and mischievous, cruel to other children, destructive and brutal, even stoning passers by—in fact became a nuisance in the neighborhood. No discipline seemed to affect him, as he was absolutely without fear of man or beast, although a thunder-storm would set him wild with fright. Apparently affectionate with his play-fellows, yet at the very moment of fondling them he would pinch, scratch, and, if opportunity offered, bite them. Was sent to public and to private schools, and his adopted mother tried to teach him at home; all of no avail, he either could not or would not learn. When 8 years old he deliberately set fire to his adopted father's warehouse, which adjoining the dwelling, both were burned to the ground. Notwithstanding he had brought ruin to his benefactors, they were still devoted to him, and would have kept him with them had not the neighbors vigorously protested.

Came to us at 9 years, a tall, slender, nice-looking boy, with a sweet face, fair skin, blue eyes, and light hair; neat, clean, playful, and talkative. Was soon found to be untrustworthy—a liar, a thief, with a violent temper easily aroused, a persistent run-away; in fact, everything that was bad. His slovenly, awkward gait was improved by military drill, but making little or no progress in school, his development was found in industrial work, in which he became quite useful.

In his sixteenth year he became so dangerous and violent that it was found necessary to remove him to an insane hospital, for although not insane, he needed that kind of restraint.

Case F.—S. E. Boy; aged 15 years. Entered Training School at 9. Had a pleasant face; brown hair and eyes; extremely nervous, laughing and weeping without cause. Always backward in school, but learned eventually to read and write. Was an adroit thief, cruel to children, crafty, disobedient, and self-willed; would sacrifice anything and anybody to get his own way. No respecter of persons, would attack anyone. Absolutely insensitive to pain.

First-born; nourished by mother; a sickly child, who suffered from hernia. During gestation the mother was much distressed by the death of her mother. Father, a day laborer, mentally below par, was drunk at time of conception. Father was 24 and mother 22, at time of S.'s birth. Father used tobacco inordinately—smoked constantly—and was drunk fully 3 days out of 7. Both father and mother are extremely nervous and given to hysterical attacks. Paternal grandfather and maternal grandfather both died of phthisis, as did also a sister and brother of the mother.

Case G.—L. D. Boy; 16 years old when photograph was taken. Bright-faced, good-natured, well-formed, very erect, when coming to us at 9 years of age. In school he could not learn to read or write. Very egotistic, he was much mortified at his backwardness; would hire other boys to coach him, and in time learned to write his own name, and to spell a few words only, although every effort was made and individual attention given by most capable teachers. Meanwhile his development through the manual arts, in a period of 9 years, was phenomenal. The results of military, physical and athletic exercises were noticeable in a fine physique, good bearing, excellent carriage, and entire absence of the dragging foot-step peculiar to the imbecile. With a figure erect and well-knit, he excelled in athletic sports, and was a very graceful dancer. With powers of attention, imitation, and memory, each and all exceptional, he developed in household service gifts which, had he been normal, would have placed him above the ordinary either as chef, butler, or valet. In bakery and cooking class he was a dependence for pastry and fancy desserts; in the dining-room he would arrange and serve a dinner of six courses, needing hardly a command, so observant was he and silently obedient to the slightest sign. If going on a journey, I had only to intimate for what occasion and for how long, and my trunk or bag would be packed, not lacking the smallest article of toilet detail.

He was a very good tailor—excelling as a presser. Fond of music, and playing the baritone horn in the band, he also developed a fine baritone voice, taking leading parts in our light operas. Although unable to read, and having to be taught orally the words of songs, he had no difficulty with notes, quickness of ear and eye probably enabling him to follow or to guess.

In free-hand drawing, designing, wood-carving, and crayon-work he was also successful. Several of his studies in black and white he framed, getting out the mats and frames and designing and burning in, or carving the decorations.

An incident in connection with one of these pictures shows the peculiarity of the boy as well as the intense egotism of the imbecile. It formed part of an exhibit at a meeting of the National Educational Association, where there were some class exercises in which he was to take part, each article bearing the initials and grade of the worker. When he learned that his picture was labelled "middle-grade" he managed to exchange the label for one of "high-grade," and on finding that his correction had been corrected, he bribed a boy to steal the ticket.

Very vain of his personal appearance, he improved every opportunity to pose before a mirror. A waif from the almshouse, he indulged in delusions of grandeur, and imagining that he was descended from noble people, would tell wonderful tales of the magnificence in which his family had lived, and managing to steal a photograph of the then Empress of Russia, passed it off as a picture of his mother. Crafty and a past master in the art of deceiving, he would slip from one lie to another until detected, when he would make an open confession in his own frank way, weep a little with extravagant protestations of penitence and promises of amendment, and would immediately proceed to plan out another scheme. Apparently affectionate, loyal and disinterested, he was deceitful, dishonest and thoroughly calculating, to which was super-added all the sexual vices. When 22 years old his engaging manners attracted a gentleman who felt that he ought to make a success out in the world, but ignorance of the 3 R's always precluded competition with normal people, for he could neither count nor appreciate the value of money. After repeated failures he was finally engaged as a private attendant to a wealthy patient in an insane hospital. Here he got into trouble with a girl, stole from his patient and was quickly discharged. Again, as in the beginning, a waif and stray, more than once he drifted back to us, a pauper, starving and in rags, to be fed, cared for and started afresh, only to fall again, for, wholly irresponsible and taking to drink, he sank lower and lower.

Passing one evening a crowd of "toughs" at a street corner, I was to my amazement respectfully saluted—a hand instinctively raised to the cap, showing the military training—and there was poor L. Shortly afterwards he appealed to a former comrade, another of our boys, a respectable young carpenter lodging in a neighboring village, who took him in, fed him, clothed him, and going off to work,

left him in his room; returning he found the fellow had decamped, taking with him his small savings and his Sunday coat.

A tramp and a vagabond, he is now, much broken in health, an inmate of the almshouse.

Case H.—C. W. Boy; aged 15 years when photograph was taken and 12 when entering Training School. Brown hair, gray eyes, sight and hearing good; had engaging manners, but proved sulky, brutal, cruel, and dangerous, sly, untruthful, and an adroit thief. His redeeming trait was his fondness for animals, to which they responded, his influence over them being truly wonderful. I have seen him handle with entire immunity from harm, a coon that would bite savagely at anyone else; he simply hypnotized squirrels, and constantly carried snakes in his pockets; his special favorite, a large black snake, was over 4 feet in length. Powers of attention, imitation, and memory fair. Learned to read, write, and cipher. Had a good tenor voice and played well on the drum in the band. Absolutely fearless, he would do anything to accomplish a purpose. If detected in wrongdoing he would make humble confession with promises of amendment and would immediately proceed to carry out his designs perhaps on other lines. A run-away, he had delusions of persecution and gave much trouble generally.

Under training in shoe-shop did very good work, but as time went on became more brutal and untruthful. Finally withdrawn from our care by his mother who had married a second time (a feeble-minded man), the mother and son within a few days made an attack upon the husband, and beating and disabling him, literally threw him out of the house and then walked round and round him shouting, screaming, crowing and flapping their arms like wings, for the delectation of their neighbors.

Later C. enlisted, during the Spanish-American War, but his defect soon discovered, he was discharged. He is now a tramp, wandering over the country, has been in custody more than once, and will always be a menace to society.

First-born; ordinary labor; nourished by mother, who was subjected to many hardships during gestation. The father 32 and mother 30 years of age, at time of C.'s birth. The father, peculiar and erratic, making a precarious living as a trapper and hunter, finally disappeared. The mother, an ignorant pauper, syphilitic and insane, was subject to delusions; thus she called this boy the Duke of Wellington, and always addressed him in the most respectful terms, as she did also his younger brother, who, his exact counterpart both mentally and morally, she called Prince Charles Edward.

The second child was still-born and is said to have resembled a ground hog; the mother had sustained a severe fright during preg-

nancy, the father having shot a ground hog and thrown it in her lap. The maternal grandfather was insane; the paternal grandfather became blind late in life; both grandmothers died victims of excessive smoking.

Case I.—K. G. Boy; 19 years old when photograph was taken. Tall, handsome, of fine physique, with engaging manners. When he came to us at 18 years of age, could read and write fairly well, but took little interest in school work, had a good voice in singing, learned to play on both drum and cornet, and responded to military and physical training. Did fairly good work in shoe-shop. Tried to do right and always regretted when he went wrong, but had no moral anchor. A liar, a thief, and a mischief-maker, he was always in trouble, and, a veritable tramp, simply could not resist when the "*Wanderlust*" took possession of him. Ran away once, and worked his way on a cattle-steamer to Antwerp and back. Trying for admission to the U. S. Army, he was refused upon the first intimation that there was even slight mental defect. Later, applying again without explanation, he passed the examination, was enlisted and rendered very good service during the Spanish-American War, the discipline proving just what he needed. Latest accounts, however, show that he has again taken to the road.

But little is known of family, except that they were respectable people, 2 brothers being Lutheran ministers.

Case J.—J. M. Boy; aged 15 years when photograph was taken. Sturdy, well-formed, sight, hearing and speech normal. Came to us when 10 years old. A run-away, possessed of a most violent temper, was untruthful, deceitful and cruel, and very unclean in habits. Recognized a few letters and figures and could count. Sent to school, learned to drill and to read a little, but was so disorderly and disobedient that but little could be done with him. The slightest contradiction or any attempt at correction would throw him into a rage during which, absolutely beside himself, he would attack anyone within reach. Did very good work in the shoe-shop and in dormitory, but as years went by, degenerated morally. In his fifteenth year he very ingeniously picked the locks of two doors and escaped. When caught and brought back his stockings were found to be filled with tobacco, very carefully concealed. The following day he broke the wire from one of the window-guards, picked the lock of the door, and again escaped. Again brought back and placed in the "Quiet," the attendant on duty, hearing a scraping noise and going to investigate, found that he had cut the door; how could not be discovered until after long search a shoe-knife was found, that he had stolen from the man who had captured and brought him back. Becoming more and more troublesome, he was finally removed to the

almshouse. Returning some months after in a most deplorable condition, he in the few hours that he was here managed to steal a suit of clothes and run off with them, and since then has not been heard of.

Nothing is known of his family history.

Case K.—H. F. Boy; aged about 10 years when admitted to the Institution and photograph was taken. Rather large head, gray eyes, pale complexion, black hair, peculiar "grey-hound" face with pointed nose. Was nervous, hysterical and sensitive to ridicule. Obstinate, profane, sly, and untruthful. Undersized, sight and hearing acute, hands small, and quite deft with fingers. Had some knowledge of the 3 R's, and did very well for a time in school, his cleverness giving at first a pleasing impression; but this very soon wore off.

Passed on from school to school, and from attendant to attendant, he bit, tore, stole, fought, and tried the soul of every man and woman with whom he came in contact. He simply could not be good, disciplining having no effect upon him.

With a curiosity as indefatigable as was his ingenuity in accomplishing a purpose, he was soon a ring-leader of mischief in the school until finally having reached his mental limit, he was transferred to one of the custodial buildings, where for a time he proved an excellent aid in housework; but his inordinate egotism, intolerable untruthfulness, hypocrisy, and cruelty increased with time, and he gave so much trouble that it was thought best to retire him to a private room—the "Quiet." The matron, a kind-hearted woman, in her visits found him within a few days very contrite, declaring his intention of being good, but at the moment she turned to leave him he made a savage attack upon her, seriously injuring her right arm.

Dr. Kerlin wrote of him when 12 years old: "The end of this boy must be only sorrow to himself and to all who have to do with him." Two years later he makes the following entry: "H. has again run away, and the saddest thing about it is that he will come back again. He is so crafty and well able to convince those who have not had long experience with him of his innocence of purpose, as to be a constant source of anxiety, and we can never feel quite sure where he is unless we see him. He can lead our better class of boys which way he chooses, and, unfortunately, he never chooses the right way. While allowed to have the liberties of our best boys and live among them, his example of successful deceit and falsehood is very injurious. There is something fearful in his cool, deliberate plan to do evil. If phthisis would develop, it would be the happiest issue."

H. was removed from the Institution in his fifteenth year, and drifting from place to place, he was convicted of larceny, im-

prisoned, and finally sent to an insane hospital, where he exhausted the patience of all with whom he came in contact, formulating the most disgusting methods of revenge upon any whom he disliked.

In his seventeenth year, exhibited by a specialist before a class as a moral imbecile, he was delighted at the sensation he created. Nine years later he suddenly appeared at the Institution, in a half-starved condition, his face marred with the traces of crime and his hair entirely gray. Fearing to retain him, he was fed, clothed and sent off. The few of his former friends whom he was permitted to see, he advised to remain where they were, as it was very hard to get along out in the world. Although expressing penitence for the past, his egotism yet induced him to relate to the attendants with great pride and bombast his various adventures, many doubtless being figments of fancy.

A year later the press was filled with accounts of a shocking murder committed in another state, the perpetrators skillfully eluding detection. H. seeing the opportunity to create a sensation, reported to the authorities that while in a certain jail for some petty offence he had overheard two men, whose names he gave, discussing in an adjoining cell the details of this crime, which they had committed. The story investigated, proved absolutely without foundation. Neither he nor the men he described had ever been in the prison he named. Since then nothing has been heard of him.

The seventh child born; a 7 months' gestation; normal labor, lasting but half an hour. Was fed artificially on goat's milk, but was a weak and sickly child. Had a convulsion three days after birth, and all his life was troubled with insomnia. Did not walk until second year.

The mother, a strong, healthy Irish woman, but somewhat hysterical, was 32, and father, an American, 36 years old, at time of H.'s birth. The paternal grandfather was a drunkard as was the father, but the latter claims to have been temperate for a year before and after H.'s birth. H. has 6 sisters—1 feeble-minded—1 brother living, and 1 born dead.

HIGH-GRADE MORAL IMBECILES: TRAINABLE IN MANUAL AND INTELLECTUAL ARTS, WITH GENIUS FOR EVIL.

Case A.—L. G. Boy; aged 15 years when photograph was taken, and 11 years old when entering the Training School. A sweet pathetic face, and engaging manners. Articulation and vocabulary good; could read, write, and cipher. Within a few days after admission ran away to witness a parade in Philadelphia, and upon

being brought back wept bitterly at the thought of his father knowing of his misdemeanor. His parents are religious, respectable Germans; the father a superintendent of a mill.

At 12 years of age, tiring of school routine, was allowed to work with gardener part of the day and to enter the music class. Learned cornet very quickly, but his teacher makes the following record of him: "He is quick to understand but there is an undertone of deceit in his character. He is not as open and straightforward as I would like to have him."

A few months later on account of bad behavior was removed from school entirely, and put to work out of doors. His father then determined to give him a trial at home, but there he proved so lawless and unmanageable that his parents begged for his return. They report L. as simply unbearable; disobedient, quarrelsome with his brothers and sisters, and the boys in the neighborhood, and brutal and disrespectful to parents. Indulged in screaming spells, and vile and profane language. Refused absolutely to return to the Institution, and was brought back by a policeman. Here defiant, vulgar, dishonest, sly, deceitful, dissatisfied, he lost interest even in his music and accomplished nothing in school. Ran away persistently and no disciplining seemed to affect him in this particular. At times he could be very attractive, and his innocent face was most misleading. After some months, responding to the influence of a teacher, he paid more attention to his music, and was generally more orderly, improving mentally, and growing more quiet. He never laughed, rarely smiled; sat much apart from the others, looking into space, apparently dreaming. There were reports of cruelty towards smaller boys from time to time, but no proofs; and he took care that there should be none. A change of teachers in his sixteenth year brought new developments and his true nature again asserted itself. His new music teacher makes the following note: "I do not know what to say about L. I cannot understand him; he seems such a mixture of good and bad. Plays very well on the cornet, but is noisy and disobedient."

From this time on, there was marked mental improvement coupled with moral deterioration equally marked. In music, in military exercises, and in manual work he advanced. Learned a trade and really did excellent work in both tailor and carpenter shop; but absolutely unreliable and undependable, he grew daily more treacherous, brutal, and cruel, openly terrorizing the smaller boys. Reasoned with and disciplined, he hardened under kindness and became restless under restraint. Both punishments and rewards were tried with negative results. An egoist, absorbed in dreams, his one ambition was to win a name as a professional prize-fighter; his one

delight was posing before a mirror stripped to his waist in the attitude of Corbett, who was his *beau ideal.*

Constantly plotting mischief, and usually clever enough to cover his tracks for the time, he organized a plot to attack an attendant to whom he had taken a violent dislike. Dominating his club he made the lives of many boys miserable, and punished severely boys, as large as himself, who refused to obey him; would use the most violent language towards them and would even spit in their plates. During the last years of his school life, homicidal impulses developed strongly, and his career in the Institution culminated in a brutal attack upon a boy whom he one evening waylaid, and without provocation, knocked down, and holding his head between his knees, spat in his face, choked him, rained blows upon head and face, and attempted to gag him. Immediately after, he wrote letters of apology to both the boy and myself, and then ran away.

After fruitless endeavors to obtain work, he returned home, but as before his presence there proved intolerable, and the safety of his family demanded his commitment to an insane hospital. There under stricter discipline he did excellent work for 5 years, until with his usual cleverness, he managed to escape. A few days later, meeting him on the street, he greeted me most effusively, telling me that he had secured an engagement in the city. Fairly well clad, but dirty and unshaven, his childish beauty and engaging manners had given place to an expression of brutality, and a coarseness of demeanor.

The next day I received the following letter from him:

"*My friend Dr. Barr:* I was real pleased to see you in a way, and sorry, because I felt ashamed of myself. I send my apology for telling you a falsehood, but the circumstances that im in I felt that I had to. To tell the truth, I ran away from the Insane Hospital about a week ago. I'm not stopping at home. Iv got to hunt my bed up, when night draws on, the way I do I walk out in the country, rather than go to these bug houses where these tramps go. Last night I was walking along Willow St. to catch a freight I was attacked by three bums, well I fixed two of them, the other one ran for dear life. Then, when it was all over, the man in blue came along, but I said nothing and walked as fast as I could. I wish I was a detictive. I could hunt up many a clue. I often feel sorry that I left Elwyn. Will you please take me back again or give me a job. I would be of big help to you in the band. Theres one thing I have a good report at the Hospital. Please answer.

"Your friend,

"L. G."

Case B.—L. K. Girl; aged 14 years when photograph was taken Came to the Training School in her sixth year. An attractive child with blue eyes and yellow hair. Willful and obstinate at first, but soon responded to influence. Quick to imitate; did well in kindergarten, and later in school learned to read and write, to sew and embroider, but began to deteriorate morally and after her eighth year never ceased to give trouble. Using her acquirements for evil purposes, she was, at 16, a thief, a liar, and a nymphomaniac who could not be trusted alone, and would pass notes to boys in the most ingenious fashion. An expert in thieving, she could lie with the most unblushing effrontery and apparent innocence. Could be clear in speech and circumspect in conduct, but at times in both language and action was most vile. Had wonderful influence over girls of lower grade and used them as tools.

In her twenty-fifth year, having grown to be an attractive and even handsome young woman, she was yet so unmanageable that she was transferred to an insane hospital. From there, through the ill-advised efforts of some sentimental philanthropists, she was released with the idea that she was capable of self-support.

Since then she has drifted naturally downwards, and having given birth to an illegitimate child, is now in the syphilitic wards of a charity hospital.

Father, a blacksmith, 41 years, and mother, an imbecile domestic 30 years of age, at time of child's birth. Father brutal, abused and beat mother, who, a victim also of overwork, suffered intense pain two weeks prior to child's birth. Labor long and difficult. Both parents drunkards, as were also both grandfathers. Maternal grandfather had an imbecile sister.

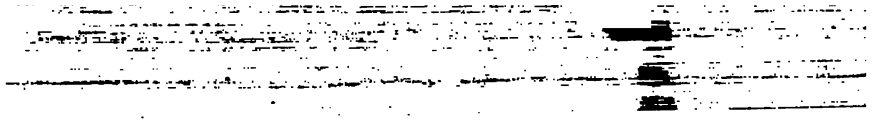
Case C.—M. W. Boy; 9 years old when photograph was taken 5 when entering Training School. Bright face, with dark eyes and hair, and sharp features. Wild, passionate, profane, undisciplined generally, and fighting continually. Enunciation slightly defective Placed in kindergarten, made but slight improvement in behavior but advanced rapidly in hand work.

As time went on, learned to care for himself and to read and write, but, growing daily more vulgar, profane, dishonest and unruly, would attack even his teacher. A persistent run-away, he seized every opportunity to escape. Developed the habit of spitting upon and biting little children, and kicking them in the face and stomach. His teacher makes note of him in his thirteenth year "I wish I could say something good of M. but I cannot, for he is wicked in every way and gives constant trouble." Could be very engaging, but it was usually when he was plotting mischief.

In his seventeenth year he escaped to carry trouble elsewhere, for

CASE E.

INSANITY.



wherever he is, there evil will follow. I have heard of him once since. Arrested under an assumed name for some offence, he referred to me for a character.

Of his mother, apparently a respectable woman, it was discovered later, that this boy was the child of her own father.

Case D.—L. W. Boy; aged 10 years when photograph was taken; 8 when he came to the Training School, but small for his age, was still wearing dresses. Red hair and blue eyes. Talked slowly, but had good vocabulary. Absolutely undisciplined and difficult to manage, his one cry was "I won't, I won't." Could be a delightful child, but more often was so naughty that he exhausted everyone's patience. Hot-tempered, defiant and obstinate, neither coaxing nor discipline had the slightest effect upon him.

Passed rapidly through the kindergarten into the schools where he did well in geography, history, and language, in military and physical exercises and dancing. Learned to draw and to play on the cornet and piccolo; was in fact one of our brightest boys, but his insolence and violence grew in proportion. A disturbing element in the schools, fertile in expedients for annoying both teachers and pupils, his vindictiveness was marked. For instance a boy who had inadvertently offended him had a picture he valued, and L. requesting to look at it, immediately tore it in pieces. Developed a fondness for animals and insects, especially for butterflies, but was intensely cruel to children. Everywhere troublesome, needing watchful supervision, he yet became quite efficient in household service and also in the printing office. Left the Institution in his seventeenth year and found employment in a mill. While a good worker, he is constantly in trouble, a fomenter of mischief, and his countenance now betokens increased hardness and brutality.

Third child; born at 7 months; nourished by mother. Father a druggist and insane. Maternal grandparents both died of phthisis.

Case E.—J. L. Boy; aged 14 years when photograph was taken. Came to my notice when he was 12 years old. A child of attractive personality and engaging manners, yet seemed absolutely destitute of natural affection. When 5 years old he found a pistol under his father's pillow, and shot his sister in the face. The little girl recovered, but with slight hemiplegia, and it is thought that the incident had a bad effect upon the boy, who was much excited at the time.

He could read and write and distinguish color and form. Was musical, developed an excellent voice and did fairly good work with the cornet and drums. An egoist, he was fond of attracting attention and praise, and would do all manner of nice things to win them. In school, was ready and clever in recitation, but impertinent to

teachers, self-willed and disliking correction, was a bully where he dared be. Much given to bombast and braggadocio, dishonest, brutal, malicious and untruthful, he was thoroughly disliked even by those boys to whom he was generously disposed.

In his sixteenth year was put in the shoe-shop where he might have done excellent work but for his unconquerable indolence. Becoming more rebellious, troublesome, and disorderly, his attacks of temper were ungovernable.

Going out into the world in his seventeenth year, he wrote many letters from various places, giving always glowing descriptions of himself and his adventures. Within a year he presented himself at Elwyn to solicit our patronage, pretending to have learned the trade of repairing musical instruments. Later joining a theatrical company, he got into some trouble, was in jail and wrote, begging me to bail him out.

First-born at full term; labor difficult, head being very large; nourished by mother. Father 30, mother 22, years old, at time of his birth. Later mother was deserted by the husband.

Case F.—R. B. Boy; aged 19 years when photograph was taken. Tall, slight, dark, choreic and languid. With manners deferential and cringing toward superiors, he was habitually domineering and disagreeable to all others. Perfectly conversant with the proprieties of life, he was yet addicted to many filthy habits, and would even spit in boys' plates at the table. Would refuse food, but at the same time would steal fruit or meat from the dish. With an abundance of fine clothing and supplied with every toilet luxury, he yet loved to crawl away in dark corners, even into coal-bins, to lie in dirt and filth.

At school learned to read, write, and cipher, and was greatly benefited by the military drill which he cordially disliked. Was disobedient, willful, and insolent. Had a violent temper and once made a homicidal attack with a scythe on a man. On one occasion was found bombarding with rocks a house, in which he had securely confined a female attendant.

The father, a member of the wealthier class, was willing to expend any amount for his comfort and improvement, and his step-mother, who lavished much affection upon the boy, was repaid only by abuse. Removed in his twenty-first year, and found intolerable at home, he was placed in the convalescent wards of an insane hospital.

Case G.—S. J. Boy; aged 15 years when photograph was taken; 12 when entered the Training School. A tall boy with pleasant expression and nice manners. Brown hair and eyes, and speech perfect. Could read, write, sing, and do simple hand-work. Did well in military drill, and in the band with a cornet. After leaving school did

fairly well as a house-painter, but slow, took 2 or 3 days to do what an ordinary man would do in one.

Reached his mental limit in sixteenth year and began to deteriorate, becoming erratic and peculiar. Became an adroit thief, an unconscionable liar, and vulgar and obscene to a degree; was constantly exposing his person. Could not be trusted anywhere near a female.

When 22 years old was removed by relatives. Giving trouble at home, was incarcerated in an insane hospital. Released on probation, his indecencies demanded his return.

First-born, at full term; ordinary labor; nourished by mother, an imbecile, who in her sixteenth year was the victim of seduction, party unknown. Was treated cruelly by family during pregnancy. Maternal grandmother and grandfather both died of phthisis. Mother was, for a time, in an insane hospital.

Case H.—F. H. Boy; aged 13 years. Light hair, blue eyes; expression sly and stealthy, although changing like a mask, at times to one of innocent intelligence. Speech, sight, and hearing perfect. Is a tobacco fiend, fond of opium and of strong drink. A liar, a thief, malicious, cruel and destructive; dangerous with fire. Is a wonderful expert at picking locks. Discovered a method of opening a six-lever padlock, with six pins.

Was in jail 3 three times before his eleventh year, for thieving and malicious mischief; is careful to conceal this part of his history. Powers of attention and imitation excellent. He is good at domestic service and very deft with his fingers. Has learned to cane chairs, and to knit hoods, caps, and shawls, in a variety of beautiful and intricate patterns. Can read and write a little but as he already uses every mental acquirement only for evil, no effort has been made to equip him further in that direction. When out in the world, was the victim of the vicious, and could be tricked into anything. A dangerous character, a menace to society, he should always be kept under close custodial care.

Father, an habitual drunkard, insane and syphilitic; cast off by his family, was 55, and mother, who was subjected to ill-treatment during pregnancy, 15 at time of birth of child, who was illegitimate.

CHAPTER XVII.

ILLUSTRATIVE CASES (*continued*).

BACKWARD CHILDREN; IMBECILES BY DEPRIVATION; NEGROID TYPE; AMERICAN INDIAN TYPE; MONGOLIAN TYPE.

BACKWARD CHILDREN: MENTAL PROCESSES NORMAL BUT SLOW AND REQUIRING SPECIAL TRAINING TO PREVENT DETERIORATION, ETC.

Case A.—M. B. Male; 24 years old when photograph was taken. Nothing is known of family nor of previous history, except that he was the ward of a benevolent society, and could not get on in a school for normal children. Coming to us when 10 years old, was a strong, sturdy little fellow with blue eyes, and a shock of beautiful dark-red hair. Was bright and active, recognized ordinary colors and forms. Knew multiplication table, could read and write, sew and knit, and ask intelligent questions. Mischievous and good-natured, with fits of sullenness. Did exceedingly well in school; was particularly fond of drawing animals and flowers; but outside was the usual naughty boy. When 12 years old, was tried in the drum corps and did very well. Made continued progress, especially in drawing and modelling, but was sulky, self-willed, and disagreeable; fond of saying smart things to make others laugh, interrupting routine and needing constant employment to keep him out of mischief.

In his fourteenth year was given a cornet on which he learned to play delightfully, the tones he made being peculiarly clear and liquid; he developed a true, rich baritone voice; played exceedingly well on the saxophone, and was oblivious to everything else during his hours of practice. Devoted to music, its refining influence upon him has been very perceptible from the inception of his musical studies. There began at this time to be a decided change in his disposition; he grew more manly, trustworthy, courteous, and considerate of others, and consequently popular with all. Much interested in military and physical exercises and a splendid athlete, he was also an omnivorous reader, remembering all that he read. When 17 entered the bakery and did excellent work there and also in the carpenter shop, where he was very handy with tools.

In his nineteenth year his record reads:

Case A.

Case B.

Case C.

EPILEPSY — GRAND MAL.

PLATE XLVIII.

"From a naughty, troublesome boy, S. has developed into a thoroughly manly fellow. Is polite, respectful, and well mannered. He is now an excellent barber, shaving over 200 boys each week, and keeping the heads of some 350 in order."

Wishing to try his fortune in the world, he was sent out well equipped, and was gone for 6 months, but found it hard to compete with the rush and drive; and missing the companionship, the amusements, the protection and the refined environment of community life, he came back in charge of his own club of boys. He knew "their tricks and their manners" handed down through generations, as they are in all schools, and understanding them, keeps excellent order and has proved a valuable attendant.

Case B.—C. U. Male; aged 21 years when photograph was taken. Came to us when 10 years old. Had a large globular head, immobile features, "pug" nose, a large jaw, and "flopping" ears. Light hair, and dark eyes, slight ptosis being evident. Carriage very bad. Unable to wash or dress without supervision. Table manners faulty, preferring to eat with fingers and spoon. Powers of attention, imitation, and memory undeveloped. Talkative, restless, and disobedient.

In school progressed slowly and gradually learned to read and write. Attained proficiency in military drill, and was devoted to athletic sports. Entered the band and did excellent work with the cornet. From his twelfth year a marked improvement in every particular was noted. He became studious, painstaking, courteous, and attractive; with an unconscious working towards a high standard he aimed to do nothing unworthy of a gentleman. While friendly with all his companions, and immensely admired by them, he was intimate with none. Made rapid progress in all the common school branches, and in the hand crafts. Was excellent in carpentry, and in the printing-office learned the trade thoroughly.

In his eighteenth year he left to accept a most desirable position —one for which he was peculiarly adapted—and giving entire satisfaction, he has been rapidly advanced; has travelled much, and used his eyes to good advantage. To-day he is a young man of absolutely correct habits, one of whom any father might be proud—who reads a good deal—good literature—and remembers what he reads, and has kept to his motto, "Friendship towards all and entangling alliances with none."

But little is known of family history except that mother, becoming insane, drowned herself and two children, C. escaping into a corn-field. Seeming to brood over this tragedy, he was considered a stupid boy in the orphanage to which he was taken.

A slow and backward child, he was fortunate in receiving early

that training suited to his needs, as either neglect or overpressure would have undoubtedly resulted in mental defect.

Case C.—M. B. Boy; aged 16 years when photograph was taken; came to Training School when 10 years old. A pretty boy, whose rosy cheeks, blue eyes, light hair, and winning ways made him a favorite with all. Articulation distinct and voice low and musical. Wrote fairly well, read in second reader, and had mastered the first four rules of arithmetic. Could distinguish colors, and draw readily various lines, angles and simple geometric forms. Was slow of comprehension—it was difficult for him to understand—but once he apprehended a subject it was his thenceforward. Was deft in use of hands and began at once simple manual work. Obedient and attentive with an excellent memory, was a trustworthy and capable errand boy. Manly and fond of active sports. I was treating him one day for a sprained ankle, the result of a fall from a cherry tree. As I bandaged it, the tears rained down his face, and when I asked, "Does it hurt?" he replied, "Yes; but I don't mind that; I'm not a baby; but I can't go to the circus to-morrow, and that does hurt."

At 11 years began the study of music. Was given an alto horn on trial. In a week learned the staff notes and could make all the tones of the scale clearly from low "C" to upper "D." Within 4 months he had learned perfectly 6 simple airs, and within eight months from the time he began, he was playing the "solo alto," and had developed a fine tenor voice. His record reads thus:

"He is intelligent, ambitious, persevering, and makes excellent use of his thinking powers."

At 12, promoted to the highest grade, became more and more interested in his studies; learned to draw admirably, became fond of reading and was able to discuss intelligibly what he read. Continued to make progress in his music, and played finely on the cornet.

At 16 he was one of our best boys; a good influence in the school—fearless, gentle, appreciative and sincere, always ready to confess any little dereliction of duty. Devoted to athletic sports, in which he excelled, he developed physically and, interested in military drill, was one of the officers of the company. A leader in theatricals, was a good actor. Devoting a portion of his time to manual training, he did very good work in carpentry. Was neat and exact, although lacking originality and "planning capacity."

At 18 he had completed the school course, and in order to prepare him to take charge of a class in wood-work, he was entered at a Manual Training School in Philadelphia. Here while advancing steadily in mathematics, wood and iron working, he continued

his music practice, rendering with expression the compositions of Wagner, Donazitti, Verdi, Balfe, etc., leading, on occasion, the entire band of twenty pieces. In vacations he gained an additional experience in charge of a group of small boys, and would have more than equalled our expectations, when in his twentieth year, on the eve of leaving school, he broke down with phthisis.

Father a blacksmith, an epileptic from his eighth year, became insane and was incarcerated in an insane hospital for seven years before his death. The mother, of very ordinary stock, barely reached the normal. Maternal grandmother had softening of the brain and paternal grandmother died insane.

The boy when two and a half years old was kicked in the face by a horse, and the wound, three inches long, was twice sewed up. In infancy and early childhood was much neglected, and from seventh to tenth years was "bound out"; did rough work on a farm from which he persistently ran away. Finally, deemed mentally defective, he was brought to us.

Case D.—M. H. Boy; 11 years old when photograph was taken. Clear complexion, brown eyes and hair, bright expression. Entered Training School in eighth year, exceedingly dull and slow at first, was gradually promoted from kindergarten to school where, although the youngest, he always stood at the head of his spelling class, wrote a well-expressed childish letter, and at 12 years compared favorably with any normal child of 10. At 14, had mastered the 3 R.'s, so far as excellent language lessons and the four primary rules of arithmetic; entered band, playing on cornet, taking first steps in music rapidly and intelligently. Prompt and obedient in military drill, he was also efficient in manual work, in household service, tailoring, and shoe-making. Withdrawn at the age of 18, he is recorded as: "A loss to the school of a healthful wholesome influence." Is now, at age of 26, a member of a military band, and doing well.

Case E.—A. H. Boy; aged 9 years when photograph was taken; entered Training School in sixth year. Brother to the foregoing and of the same mental capacity, he was like him very slow in comprehending, but improvement was constant in school. Doing well in music and military drill, acquired an easy graceful carriage. Developed habits of neatness and order, promptness and accuracy. Had training in household service, in shoe-making and tailoring. Is now, at 24 years of age, earning a respectable living.

But little is known of the family history of these two cases, except that the mother was erratic and peculiar, and that both boys were neglected in infancy and early childhood. Fortunate in a training, adapted to needs and free from excitement of competition and over-pressure, they escaped that deterioration leading inevitably to defect.

Case F.—S. M. Boy; aged 10 years when photograph was taken. Coming to us in his ninth year, a child small for his age, with dark hair and blue eyes, and speech almost perfect, he evidently had been very much misunderstood, and so mismanaged as to bring out the worst in his nature. He was stealthy, destructive, obstinate, passionate, untruthful, and untrustworthy, dangerous with fire and seemed destitute of natural affection. Could read, write and care for himself. Powers of attention, imitation and memory good.

After 12 years of careful and persistent training, he has developed into a handsome young man, erect with graceful bearing, quiet, gentle, thoughtful, courteous; indeed one of whom any mother might be proud. Is a remarkably good cornetist, plays beautifully on the violin and is invaluable in both band and orchestra. Has completed school course, writes an excellent letter, is well up in the current events of the day, and is an experienced printer and proof-reader.

Father 26, and mother 24, at time of child's birth. First-born; difficult labor, but no instruments; fed artificially. Mother is of very nervous temperament. Mother's uncle died insane. Father died of phthisis. S. seemed perfectly well until his third year, when one day at table, he suddenly lost consciousness, became rigid, and did not recover for over 30 minutes, the effect being to render him feverish and irritable throughout the day. He had 3 similar attacks at intervals of 2 years, but none since.

Imbeciles by Deprivation.

Case A.—F. C. Middle-grade. An interesting boy of 10 years. A deaf-mute with adenoid growths. Brown eyes; no ears—simply two little lumps of flesh without any external opening. Head covered with a soft down in place of hair. Was interested in all about him, and used his hands well. Sent to kindergarten, improved, learning to sew, darn stockings, and knit—always happy when occupied. Was trained in simple household duties, and later did excellent work in shoe-shop. Nothing is known of family history.

Case B.—J. B. Middle-grade; a man of probably 30 years. Asymmetry of head. A deaf-mute, who taught himself to talk; knows everything that is going on in the institution. Is quite conversant with certain historical facts, and with general topics of the day. Having learned in a fashion of his own to read and write, keeps a diary of current events and is a veritable encyclopedia. Often cruel to younger children, he is devoted to animals, having great influence over them—especially turtles, snakes, and opossums. Is an excellent worker in the shoe-shop. With a keen sense of the

ridiculous is quick to catch a joke. Has a habit of coolly appropriating anything that strikes his fancy, but is on the whole very interesting.

Nothing is known of his family, and but little of his previous history except that as an acrobat he had a fall in a circus, injuring his head.

NEGROID TYPE.

Case A.—R. L. Low-grade girl, 16 years old. Negroid cast of countenance. Skin "mulatto-colored." Hair black, coarse and straight. Eyes black, large and prominent. Head "bullet shaped," frontal region comparatively undeveloped. Flat nose, thick lips, often apart, teeth defective. Tone of voice guttural, and articulation imperfect in the very few words attempted. Trained in house work, and care of children.

But little known of family history, except that her people were not negroes, but ignorant whites, who attributed her condition to a "severe fall, when five weeks old."

Case B.—Q. S. Low-grade imbecile woman, epileptic, aged 31 years. Skin darker than that of a mulatto. Eyes black and beady; ptosis marked. Hair jet black, curly and glossy. Nose broad and flat. Large mouth; thick coarse lips. Very defective articulation. Went to school, but mental limit was soon reached. Sluggish habits precluded any advance in industrial work. Has deteriorated, and is now a subject for asylum care.

Father, a merchant, 55, and mother 23 years, at time of Q.'s birth. Mother very hysterical, died a year after of phthisis. Maternal grandfather developed epilepsy late in life. A half-brother, son of the father by a former marriage, is of much the same type, yet there is no trace in the family of an admixture of negro blood.

AMERICAN INDIAN TYPE.

Case A.—D. R. High grade, male, 27 years old. Slender erect figure and bearing good. High cheek bones, prominent nose, and sharp-pointed chin gives a wedge shape to the face, which together with tawny complexion, and straight coarse dark hair, presents a marked resemblance to an Indian. Forehead peculiarly wrinkled. Enunciation slightly defective, and speaking voice husky and rough, although a good baritone in singing. Is a fair cornetist, and a remarkably fine drummer; also manages the "traps" in the band to perfection. Is good in house service, and fair in carpentry. Is an omnivorous reader, and writes an excellent letter. Nothing is known of family history.

MONGOLIAN TYPE.

Case A.—S. G. Boy; aged 15 years when photograph was taken. Low grade, with the characteristics of his class, was unimprovable, except in the attainment of some simple industrial occupation. Became, through training, quite a good worker in laundry, running machines, etc. Decidedly under size. Figure slight and erect. Head brachycephalic; face a pointed oval. Skin soft and of a yellowish color; eyes dark, almond-shaped and set obliquely; nose pointed; ears "pitcher-shaped," prominent and planted far back. Hair on head brown, soft, straight and fairly abundant, but on face and body, sparse. Tongue large, pointed, fissured and papillæ much hypertrophied; teeth poor. Speech guttural, very imperfect, certain articulate sounds being impossible. Hands broad, fingers short and stumpy, integument coarse. Heart defective; circulation poor. Good natured, but obstinate at times; has a keen sense of the ridiculous and some faculty of imitation. Has an excellent memory.

Father 43, mother 31 years of age, at the birth of this, their eighth child. Born at full term; ordinary labor; nourished by mother. Was a weak babe, the mother sustaining a severe mental shock during pregnancy. Did not learn to walk until 4 years old, and had "brain disease" at 5.

Mother died at 44, of cancer of uterus. Father died of general exhaustion. Paternal grandfather died of phthisis, and maternal grandmother of heart disease.

Case B.—M. F. Female; aged 23 when photograph was taken. Low-grade imbecile, trained to habits of self-help and to aid in simple household occupations. Obstinate and disobedient at times, but fairly tractable and affectionate. Powers of mimicry good, seeing the ridiculous quickly. Undersized. Head brachycephalic; broad forehead and pointed chin, giving an oval face. Skin coarse and tawny. Hands broad; fingers short and stumpy. Gruff guttural voice. Ears set far back but of normal size. Eyes dark, almond shaped and oblique. Hair dark brown, stiff, wiry, and fairly abundant.

Father, a wheel-wright, aged 50, and mother an imbecile, aged 49 at time of the birth of M. who was the sixth of nine children. Nourished by mother who, during gestation, in abject poverty, often suffered from hunger.

A sister, brother, and the father became insane, the two latter committing suicide, and M. herself in her thirty-first year also became insane with homicidal and suicidal tendencies. Paternal grandfather died of phthisis.

Case C.—D. J. Boy; aged 18 years. A superficial apathetic

idiot. Semi-mute, speaking only a few words; enunciation very imperfect. Understands simple language. Learned to feed himself and is cleanly in habits. Dwarfish in stature; squat figure; slouching gait; drooping posture; tailor fashion in sitting. Head brachycephalic; forehead flat and wrinkled transversely. Hair brown and somewhat scanty. Eyes oblique, set rather close together; there is photophobia, and chronic conjunctivitis. Nose flat; ears "pitcher-shaped," and implanted well back. Tongue very large, filling the mouth completely, fissured deeply, papillæ being much enlarged. Skin a muddy yellow; hands broad and fingers short and thick. Circulation feeble. Nothing is known of family history.

Case D.—G. P. Boy; aged 10 years. Superficial excitable idiot. Choreic. Semi-mute. Became in 2 years cleanly in habits and able to feed himself. Restless and quick in movement. Extremities small. Had a habit of crossing legs tailor fashion. Head brachycephalic. Hair dark brown and scanty. Ears large and very prominent. Eyes oblique; chronic conjunctivitis. Skin yellowish. Mouth wide; tongue long, thick, pointed, and fissured. Nose wide. Circulation poor.

Family history good. Father a machinist, was 41, and mother 38 years old, at time of G.'s birth. Sixth child, born at full term, nourished by mother.

Case E.—A. W. Male; idio-imbecile, epileptic, aged 24; undersized. Improved in self-help, and as aid in the nursery. Had right inguinal hernia. Testicles slow in descending. Head brachycephalic. Face narrowed at jaws. Ears prominent, set far back. Nose pointed. Eyes markedly almond-shaped, convergent strabismus, chronic conjunctivitis and advanced entropion, with absence of cilia. Hair black, stiff, wiry, and scant. Skin tawny and coarse. Lips thick and constantly apart. Tongue large, thick, deeply fissured, and papillæ greatly hypertrophied. Hands broad, fingers thick and clumsy. Circulation defective; liable to chilblains. Digestion weak.

First-born of 4 sons, slow delivery, owing to contracted pelvis. Mother thrown from carriage 3 months previous to child's birth. Mother hysterical and ignorant; father an invalid and slightly lame.

CHAPTER XVIII.

ILLUSTRATIVE CASES (*continued*).

CRANIECTOMY; CRETINISM; MYXŒDEMA; MICROCEPHALUS; HYDROCEPHALUS; IDIOTS SAVANTS; INSANITY.

CRANIECTOMY.

Case A.—C. B. Girl, epileptic; aged 16 years. Superficial excitable idiot; semi-mute, able only to feed herself. Mischievous, destructive, unclean, and hard to manage. Nervous and restless, constantly in motion, running and walking to and fro. Unconscious of danger, quarrelsome, pinching and biting other children, herself insensitive to pain.

Craniectomized at 8 years of age; became more nervous, continually tearing face and clothing and picking at wood-work. Spasms increased in force and frequency, as did her restlessness and cruelty; would attack anyone within reach. Filthy day and night, retrograded rapidly.

First-born; full term; nourished by mother who was much troubled during pregnancy. Father a carpenter, aged 25, and mother 24, at time of child's birth.

Case B.—F. B. Boy; aged 11 years. Superficial apathetic idiot; epileptic. Semi-mute; sight and hearing good. Understands simple language. Is partially paralyzed and very frail. Can feed himself but is otherwise helpless.

Linear craniectomy was performed when 7 years old, without the slightest improvement resulting.

First-born, full term, labor ordinary. Father, an artisan, aged 24, and mother 22, at time of F.'s birth.

Case C.—M. R. Male; aged 20 years. Middle-grade. Well-formed; blue eyes, red hair. Nervous, erratic, loquacious, and an egoist; affectionate, obstinate at times, and noisy. Unable to concentrate his attention for any length of time; can sometimes read and write quite well, and again, not at all.

In his twelfth year his parents were induced, although there was no sign of pressure on the brain, to have craniectomy performed with hopes of mental improvement, which have not been realized.

Third-born; full term; ordinary labor. Mother profoundly shocked 3 weeks before M.'s birth. Father a miner, was 26,

and mother 25, at time of child's birth. M. developed epilepsy at 4 months, which continued until the fifth year, when he was circumcised; no spasms since.

Case D.—C. H. Boy; aged 19 years. Middle-grade. Was craniectomized at 12 years of age and came to me a year later. Sight, speech and hearing normal. Extremely nervous, active, noisy, but affectionate, obedient and truthful. Tidy in dress and cleanly in habits. Powers of attention, imitation, and memory fair. Could count his ten fingers, but knew nothing of color, form, or alphabet. In kindergarten, improved slowly; began to imitate motions in games and to sing. To copy the alphabet and to weave paper mats was the extent of his attainments, and within two years his mental limit reached, he became quarrelsome, easily excited and his attention diverted by any trifle. In appearance he looks brighter than he really is, for, losing both memory and hand power, he is steadily deteriorating, not the slightest improvement having resulted from the operation.

First-born; at full term; instrumental delivery to which mental condition is attributed; nourished by mother, and apparently strong and healthy until seventh month, when he had meningitis. Seemed different from other children; slow and peculiar, could not get along in ordinary public school. Father, a piano-key maker—dying of anæmia at the age of 42—was 34, and mother—very deaf—aged 19 at time of C.'s birth.

Case E.—M. C. Female, aged 23 years. High-grade. Came under my care when 9 years old. Choreic movements of face, powers of attention, imitation, and memory, excellent. Could read and write, sing, distinguish color and form and care for herself in every way. Did well in school, but affected and silly at times. Mental limit reached at 15, when she became a pronounced nymphomaniac; formed violent attachments for girls, and was fond of attracting the attention of boys.

In her seventeenth year, her mother being persuaded that imbecility could be cured, craniectomy was performed. Exhibited as a phenomenon in the hospital, and tributes paid to the surgeon's wonderful skill, there was nevertheless not the slightest improvement in her condition.

First-born, at full term; instrumental delivery. Father a drunkard, was 42 and mother, forced to leave him in fifth month of her pregnancy, was 18 at time of M.'s birth. Paternal grandfather, a drunkard, died of cancer of the mouth.

Case F.—F. E. Boy; aged 11 years. Epileptic. High grade. Coming to me at the age of 7 years, immediately after an operation of linear craniectomy, he was a bright-faced attractive boy, with

black eyes and hair; erect and good physique. Speech, sight, and hearing perfect. Affectionate, truthful, obedient, tidy in dress, cleanly in habits. Table manners excellent. Understood language and had a fair vocabulary. Powers of imitation and memory good, but attention poor. Knew nothing of color, form or number. Upon entering the kindergarten, was inclined to be a little slow, but when stimulated, responded and became eager to learn. Sense of perception developed rapidly. Readily recognized articles by touch. Developed an excellent singing voice. Learned to march and dance gracefully. Passionately fond of music, and animals, learned to read, write, to draw and model in clay.

In his ninth year there was a sudden change in his moral nature. Became stubborn, disobedient, untruthful, and a kleptomaniac, stealing articles for which he had no use, covering up his tracks with the utmost cleverness. He began to grow silly and there was a recurrence of epileptic attacks, from which there had been immunity for five years. There was a marked change also in mental condition, and he would sit listless or aimlessly scribbling on slate or paper. Within two years, as spasms gradually decreased and finally ceased, he emerged from this lethargy and returned to his former condition—moral and mental. His improvement I consider due to the cessation of the spasms, training, and treatment, and to the individual care he has received. I can see no benefit traceable to the craniectomy.

Fourth-born, full term; labor ordinary. Apparently normal when born, had several falls during infancy, but nothing unusual was noticed until at 12 months, after an attack of whooping-cough he appeared peculiar, and at 3 years developed epilepsy.

Father a stone-cutter, was 37; mother 29, when F. was born. Family history excellent.

Case G.—K. J. Boy; aged 19 years; high grade. When coming to me in his fifteenth year, 6 months after he was craniectomized, was dreamy, and extremely nervous. Had had the habit as late as his tenth year of sucking his thumb and of pulling his hair; had pulled almost all the hair off the top of his head. Had been allowed to smoke cigarettes inordinately during his twelfth year. Could not concentrate attention; desired constant change. Dark hair and eyes; pleasant expression. Obedient, affectionate, and truthful. Recognized color and form, and could read, write and cipher. Powers of attention, imitation, and memory good. Sight, hearing, and speech perfect. Took delight in trees, birds, and flowers. Did well in purely mental work, but having little idea of proportion, and measurement, manual training was at first difficult. In this, however, he has improved and does beautiful work in sloyd. Im-

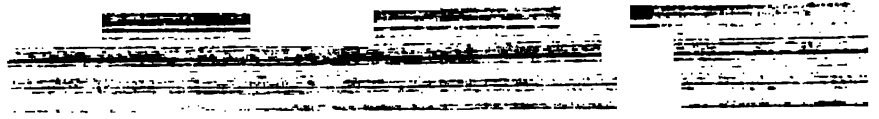
Case D.

Case E.

Case F.

EPILEPSY — GRAND MAL.

PLATE XLIX.



provement was due in no way to operation, but to careful, patient training.

First-born; instrumental delivery; nourished by mother for first few weeks, and then fed artificially. Was a weak, cross, sickly babe. Slow in developing, in walking, talking, and in general intelligence. At 6 years had a severe fall, striking on his face. Father—a paper hanger—and mother, were each 21 when K. was born. Father healthy; mother delicate, phthisical and nervous—any excitement inducing fainting spells—died at 33 of paralysis, as had also her father. Father and both grandfathers drank moderately. The father says of his family: "A close examination might place some of us below the average scale of intelligence—not feeble-minded or insane, but usually termed queer."

For additional cases, see "E" and "F" of Microcephalus.

CRETINISM.

Case A.—P. C. Boy; 16 years old. Low grade. Height 4 feet 2 inches; weight 67¼ pounds. Blue eyes, red hair, sight and hearing perfect. Speech somewhat indistinct, and vocabulary limited. Powers of attention, comprehension, imitation, and memory fair. Is active, noisy, amiable, affectionate, truthful, neat in dress and cleanly in habits. Can wash and dress himself, and is helpful about the house.

Delicate from birth; did not learn to walk until fourth year, when his cretinous condition was first recognized. A mute, he presented all the characteristics of a typical cretin, until his tenth year, when placed on thyroid (two and one half grains extract, three times a day), the improvement was marked, both mental and physical; he grew 6 inches, improved in speech, and brightened in every way.

Eleventh child, born at full term; hard labor; nourished by mother for 2 years, who when 3 months pregnant nursed 4 of her children with scarlet fever. Father, a laborer, was 45 and mother 40, at time of P.'s birth.

Case B.—M. R. Female. Low grade, aged 21 years. Height 3 feet 4 inches; weight 55½ pounds. Sight and hearing perfect. Gray eyes, auburn hair, clay-colored skin, large mouth, protruding tongue, indistinct speech, and waddling gait; abdomen large and pendulous. Very sluggish in movements and physiologically old. Disposition amiable and affectionate. Came under special training in eighth year. In kindergarten 9 years with no practical result. Learned to eat with a spoon and became quite cleanly in habits. Thyroid treatment tried, but was found too severe for a constitution so delicate.

M. was born at full term; ordinary labor; nourished by mother. Father, a laborer, died of phthisis, as did also the mother.

Case C.—N. L. Boy; of middle-grade, aged 5 years. Height 3 feet 3 inches; weight 34¼ pounds. Clay-colored complexion; pendulous abdomen; head brachycephalic; hair dark red, thick and fine. Face square, bridge of nose flattened, nostrils dilated. Tongue is large; teeth badly decayed. Ears large and prominent. Eyes brown, set far apart. Circulation poor, extremities cold; red spots on cheeks. Speech very defective and vocabulary small. Sluggish in habit. Gentle, amiable, affectionate, obstinate; has a violent temper when roused. Powers of attention, imitation, and memory fair. Unable to wash, dress, or care for himself in any way.

First-born, dry birth, premature, labor difficult. Fed artificially during first month, then nourished by negro nurse for two weeks, and afterwards by mother. A sickly infant with defective heart; had a slight attack of meningitis when 6 days old, associated with spasms. During the first and latter months of pregnancy the mother suffered from fatigue of journey, anxieties from proximity of yellow fever, and within a few weeks of delivery sustained a severe fright. Father 25, mother 23, at time of N.'s birth. Family history good. Environment not of the best—being a malarious district in the far south—an entire change was deemed advisable.

Upon coming to me, he was placed at once on thyroid, 2½ grains of the dried extract being administered daily in divided doses. The effect was immediate increase of temperature and loss of appetite. A gradual reduction, first to one half and then to one fourth of the quantity still producing very unpleasant effects, I was forced finally to abandon it. Extreme fragility of constitution gave no hope of resisting the rigors of a northern climate, and in fact, demanded a return home.

MYXŒDEMA.

Three sisters closely resembling one another. Each has the characteristic round "moon face," double chin, wide flat nose, large mouth, thickened lips, and yellowish complexion with red patches on cheeks. Expression placid and good-natured. Flesh firm; does not pit on pressure. Skin dry, secretions scanty, hair dry and brittle, as are also nails. Hands, feet, and eyelids swollen. Thyroid glands atrophied, temperature below normal, averaging 96½°. Mental processes slow, speech difficult and hesitating; vocabulary limited.

Case A.—A. M. Female; aged 30. Low grade; weight 180¼ pounds, height 4 feet 11¼ inches. Epileptic, spasms infrequent, but very severe. A nymphomaniac. Is nervous, hysterical, very sensa-

tional and has delusions of persecution. Is irritable, stubborn, and obstinate. Has learned to do simple house-work. There has been gradual but persistent increase in size during 17 years.

Case B.—L. M. Female, aged 33. Low grade; weight 258¼ pounds, height 5 feet 1¼ inches. A nymphomaniac. Is irritable, suspicious, vulgar, profane, untruthful, and obstinate. Has delusions of persecution. Can assist in housework, in clumsy fashion.

Steadily increasing in size for the last 20 years, has just as steadily deteriorated mentally.

Case C.—B. M. Female, aged 38. Low grade; weight 198½ pounds, height 5 feet 1½ inches. A nymphomaniac. Amiable and manageable. Can do housework and is an excellent nurse for small children.

Each of the three sisters was born at full term. Ordinary labor; nourished by mother. Were all large babies, and all unusually large during infancy and childhood. Parents, both "Pennsylvania Dutch." Father, a laborer, drank moderately; died about 40 years of age of phthisis.

MICROCEPHALUS.

Case A.—W. M. Male; superficial excitable idiot; aged 10½ years when photograph was taken. Height 3 feet 11¾ inches, weight 44 pounds. Head, microbrachycephalic.

HEAD MEASUREMENTS.

	Inches.
Circumference	15¾
Naso-occipital arc	10⅝
Binauricular arc	10⅜
Antero-posterior diameter	5⅛
Greatest transverse diameter	3⅞
Binauricular diameter	3½
Facial length	10⅜
Cephalic index	77

A mute, with dark hair and gray eyes. Teeth fair; alveolar arches wider than usual, and palate almost flat. Sight, hearing, taste, and smell apparently normal. Helpless, with marked sialorrhœa, he is unable to walk or to care for himself; spends most of the day in the rocking-chair. Is insensitive to pain, extremely nervous, restless, and noisy, never quiet when awake, with pronounced imperative movements that follow a regular cycle thus: First, throws up head and places left thumb in mouth with fingers resting on left cheek while he rocks to and fro; bending low, he straightens and turns to right, at the same time placing right hand at nape of neck; next throws left arm to right shoulder; crosses wrists, strikes right side of face under ear with right hand and strikes hands together;

then wrings hands with imperative movements of fingers, and places right index finger in left palm; places left index finger to lips, thumb in mouth; waves both hands, and crosses feet. This he does constantly when awake, with brief intervals between cycles, during which, more quickly than the eye can follow, he pulls and picks at clothing. Organs and functions of body normal, except for occasional attacks of gastro-intestinal disturbance.

Under treatment for 7 years, learned only to feed himself with a spoon, and became more cleanly in habits, indicating his wants by a peculiar wailing cry.

Second child; born at full term; labor ordinary; nourished by mother. Father, a laborer, 26 years, and mother 24, at time of W.'s birth. Two sisters living, both healthy. Parents of "Pennsylvania Dutch" stock. No cause for W.'s condition assigned. Died in twelfth year, of intussusception.

At the necropsy the body weighed 45.64 pounds and measured 3 feet 11¾ inches. Calvarium thin, measuring at cut portions but one eighth of an inch. Brain not especially edematous, and only a moderate amount of cerebro-spinal fluid escaped. Dura adherent to pia over whole cerebral hemispheres, and in some places to the calvarium, so that the latter was removed with great difficulty. Brain weighed 20.64 ounces.

The cerebral hemispheres were of equal size—each hemisphere measuring antero-posteriorly 5 inches—and did not cover the cerebellum, about one inch of each cerebellar lobe being left exposed. The fissure of Rolando on each side was nearly perpendicular. The cerebral convolutions were very imperfectly developed, especially in each parietal lobe. The cerebellum measured transversely 4.14 inches, and was much better developed, proportionately, than the cerebrum. The occipital lobes were separated from one another, and the left superior vermis was exposed. The cranial nerves were normal, and the pons was well developed. The spinal cord was about as large as is usual in a child of the same size.

Case B.—W. P. Male, superficial excitable idiot, aged 10 years. Height 3 feet 7¾ inches, weight 40 pounds. Head, microbrachycephalic, resembles a cocoanut in size and shape.

Head Measurements.	Inches.
Circumference	14⅞
Naso-occipital arc	9
Binauricular arc	9⅞
Antero-posterior diameter	5⅛
Greatest transverse diameter	4
Binauricular diameter	3⅛
Facial length	5½
Cephalic index	77

A semi-mute with brown hair and eyes. Large mouth, thick lips, prominent teeth, alveolar arches wider than normal, and palate almost flat. Sialorrhœa marked. Sight and hearing normal; taste and smell very acute. Is left-handed and fingers are clubbed. Muscular development fair, is very active and has a peculiar "running" gait. Obstinate, but not sullen, has a violent temper and when roused will throw himself upon the floor, beating his head with his hands. Is eager to attract attention and excite sympathy.

When first brought to me, in his seventh year, was as wild and untrained as any animal of field or wood. In first and second years he improved in matters of self-help, becoming more cleanly in habits and able to feed and dress himself with very little assistance. Very imitative, he will attempt to do anything that excites his interest, delighted to aid in polishing floors and, understanding simple commands, is fairly obedient.

Under training in articulation he began to call his play-fellows by name and to use short phrases: "I wont," "Come here," "You can't get it." Will laugh and tap his head when asked "Who is dumb?" and, showing a power of associaton, he will make the same gesture when required to do anything to which he is disinclined. Will defend himself from other children if imposed upon, yet is generous and affectionate toward them, and always willing to share any sweetmeats.

First-born, at full term; labor ordinary; was nourished by mother who during fourth month of gestation was frightened by an organ-grinder's monkey jumping into her lap. Father an Austrian by birth, by occupation a miner, was 20 years of age, and mother, a Prussian, was 17 at time of child's birth.

Cases C and D.—J. and R. C. Twin brothers, aged 7½ years. Profound excitable idiots. Heads, microbrachycephalic.

J.—Height 3 feet, 6½ inches; weight 36 pounds.

Head Measurements.	Inches.
Circumference	16⅛
Naso-occipital arc	10¼
Binauricular arc	9⅝
Antero-posterior diameter	5⅛
Greatest transverse diameter	4
Binauricular diameter	3½
Facial length,	5½
Cephalic index	77

R.—Height 3 feet 7 inches; weight 33½ pounds.

Head Measurements.	Inches.
Circumference	15¾
Naso-occipital arc	10⅛

	Inches.
Binauricular arc	9⅞
Antero-posterior diameter	5⅛
Greatest transverse diameter	4
Binauricular diameter	3½
Facial length	5½
Cephalic index	77

These children resemble each other so closely that it is almost impossible to distinguish one from the other, except that J. has a supernumerary thumb on right hand. Alveolar arches are wider than normal, and the palate is almost flat in both cases.

Both have light hair and blue eyes, and are absolute mutes. When pleased they give frequent bird-like cries, consisting of one shrill prolonged note repeated at intervals. They are healthy, active little fellows, docile, affectionate, recognizing readily their playmates and those in daily attendance upon them. Destructive, but not more so than are many nervously active babies of two years, which is about their stage of development, being quite as incapable of self-protection or self-help. Habits unclean; sialorrhœa marked. They are restless and climb with the agility of cats, though muscular incoördination is noticed in the shuffling, dragging uncertain gait. Powers of attention and imitation poor, but curiosity excessive, and temper quick. In these cases there is not the slightest hope of improvement.

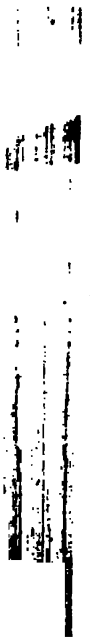
Father, a cabinet-maker by trade, is a pronounced dipsomaniac, subject to severe attacks of headache; was 42, and mother 34, at time of twins' birth. Born at full term; labor ordinary. Conception took place while father was in a state of intoxication, and the mother who kept a boarding-house, was, during pregnancy, burdened with the care of another microcephalic epileptic child. J. and R. were the fourth and fifth of a family of five children (all boys) two apparently normal.

Cases E and F.—H. and M. Males; brothers, aged respectively 10 and 8 years at time photograph was taken. Superficial excitable idiots. Brown hair and eyes. Sight, hearing, taste, and smell normal, so far as can be judged. Alveolar arches wider than normal, and the palates almost flat; sialorrhœa. Teeth fair. Right-handed. Circulation poor; hands and feet always cold. Began to walk at end of first year, drag feet, but are very active children. Are unconscious of danger, excitable, and destructive; quick-tempered, and when angry bite fingers, slap faces, and, throwing themselves down, will beat heads upon the floor. Are egotistical, fond of attracting attention, obstinate, selfish, and jealous. Powers of attention, imitation, and memory rather remarkable for children of this grade. Nervous and in perpetual motion; unclean in habits, incapable of self-help. Heads microbrachycephalic.

CASE A.

CASE B.

EPILEPSY — PETIT MAL.



H.—Height, 4 feet 3 inches; weight 52 pounds.

Head Measurements.	Inches.
Circumference	16½
Naso-occipital arc	9⅞
Binauricular arc	10⅛
Antero-posterior diameter	5½
Greatest transverse diameter	4⅜
Binauricular diameter	4⅜
Facial length	5½
Cephalic index	79

Craniectomy was performed in his fifth year, the incision being made through the skull in an antero-posterior diameter, beginning at the occipital crest and coming forward to the root of the hair.

A mute when he entered school at six years of age, has learned to make his wants known in single words and short phrases. Was wild and unmanageable, but responding to discipline, is now fairly obedient to simple commands. Has learned to hold chalk, and pencil, and to erase black-board, to string beads and match primary colors, to lace a shoe, and to recognize pictures, such as horse, cow, dog, etc., associating and calling name, when he sees the living animal. Can execute a few simple movements in drill and march a little. Recognizes members of his family when seeing them after long intervals; is fond of his brother, of his nurses and of animals. Is much diverted by music, which always excites him to rhythmic movements.

M.—Height, 4 feet 1 inch; weight, 46¾ pounds.

Head Measurements.	Inches.
Circumference	15⅛
Naso-occipital arc	9⅞
Binauricular arc	9¾
Antero-posterior diameter	4¾
Greatest transverse diameter	4½
Binauricular diameter	4⅛
Facial length	5⅜
Cephalic index	96

Craniectomy was performed in his third year, an incision having been made through the skull in an antero-posterior direction, beginning at the occipital crest and coming forward to the root of the hair, then curving to the right, a piece of bone one inch wide being removed.

Body well formed, hands abnormally large. Has excessive muscular development, especially at wrists, enabling him to lift himself by hands and to cling to a pole. If his hands are supported, will climb with wonderful agility and peculiar monkey-like movements. Ner-

vous and active. He never walks, but runs in a peculiar "tip-toe" fashion. Vocabulary limited to a very few words.

Devoted to his brother, is fond of other children, but mischievous, likes to tantalize them, which he does in a variety of ways. Will strike in jest, unconscious of the violence of a blow. Can call his brother and nurses by name, say "good-bye," kissing and waving his hand, but attempts nothing further than the two short phrases: "I'll kill you," and "What's that?"

More mischievous and destructive, with less powers of attention than his brother, M. has never been a fit subject for school training. Is a good mimic. Imitates the barber stropping razor, lathering face and shaving. Can fall and imitate a spasm perfectly, and enjoys the fun of it with his playmates, but when a boy falls in a true spasm, will run quickly to place a pillow under his head. Has learned to "back-fold" his arms, and understands that when he is turned face to the wall, placed in a corner, or forced to stand on a stool that it is for discipline. Knows the name of every boy in his dormitory—34 in all—and can also select a particular key from a large bunch.

Family history good; it is claimed that there is no nervousness on either side. Both boys were born at full term; labor in each case extremely difficult but without the aid of instruments. Father, a merchant by occupation, 24, and mother 28, at time of H.'s birth; M. born two years later. Both children nourished by mother. Both heads were observed at birth to be unusually small; the fontanels had closed, and there was bulging of the cranial vault, extending in antero-posterior direction.

A constant source of interest to those in charge, both have received for over six years more than the usual amount of individual attention, yet the result attained has not been even capacity for self-help without assistance. These cases offer therefore still another practical refutation of the claims made by the advocates of craniectomy. This refutation is further emphasized by a comparison between these cases, and the second one described under microcephalus (Case B, p. 296). Of the same age as the older of these brothers and possessing practically the same mental capacity, with head measurements closely approximating, P. who has received the same care and training for about the same length of time—the three boys having grown up together—is really both physically and mentally rather in advance of the other two boys who have had the advantage (?) of craniectomy.

HYDROCEPHALUS.

Case A.—C. E. Male; idio-imbecile, aged 31 years, came to me at 18. Height 5 feet 2 inches; weight 134½ pounds.

Head Measurements.	Inches.
Circumference	27½
Naso-occipital arc	17⅛
Binauricular arc	17¾
Antero-posterior diameter	8¾
Greatest transverse diameter	8
Binauricular diameter	6½
Facial length	7½
Cephalic index	92.34

Skin very white, eyes blue, large nose, and defective teeth. Walks with difficulty; footsteps weak and tottering. Has a fair vocabulary; talks incessantly, but in childish fashion. Has a good memory; repeats nursery rhymes, and imagines he can read, but really knows only a few letters of the alphabet, having been tried in school for three years with no result. Learned to care for a helpless child, and to polish floors, but seven years after admission, began to grow more helpless and retrogression was marked.

Father, a machinist by trade, 36, and mother 30, at time of C.'s birth. Maternal uncle insane. Eighth child; born at full term; labor ordinary; apparently strong and healthy until sixth month, when he began to fail and head began to enlarge.

Case B.—H. H. Male; idio-imbecile, epileptic, 17 years old. Came to me at 13, when mental limit had almost been reached. Height 4 feet 7¾ inches; weight 89 pounds.

Head Measurements.	Inches.
Circumference	25
Naso-occipital arc	16¼
Binauricular arc	17¼
Antero-posterior diameter	8½
Greatest transverse diameter	7¼
Binauricular diameter	5½
Facial length	6¼
Cephalic index	86

Fair complexion; eyesight somewhat defective, hearing and speech perfect, but limited vocabulary. Cleanly in habits, but needing care in self-help. Powers of imitation and memory good, but had been much neglected. Learned to do simple house-work, and after eight months' persistent effort, to braid rope in three strands, and to wash and dress himself.

Father a stone mason, drank to excess as did also paternal grandfather. Mother's sister feeble-minded. Birth ordinary; nourished by mother.

Idiots Savants.

Case A.—K. W. Specialty drawing. Male; high-grade; 22 years old; an epileptic, with attacks occurring at long intervals. Eyesight very defective; other senses normal. Good bearing and attractive

personality. An excellent musician—above the average—he is also most ready with his pencil and a wonderful caricaturist. Seeing the humorous side of everything, is quick to catch likenesses and peculiarities, and to note their association, and is equally quick in reproducing them.

On one occasion in a class exhibit before an educational association, drawing with his usual facility, some pigs feeding, interrogated as to his subject, he replied without hesitation and without interrupting his work: "Pork and beans." Once I wanted him to design some original menu cards for a dinner party. He tried persistently for two days, but found no ideas that would materialize. Finally his teacher taking him to my library, showed him some steins and loving cups. He at once seized the idea, and sitting down, drew off-hand a wonderfully clever set of cards—rabbits, dogs, and pigs. One especially unique, represented a rabbit hilariously kicking the bottom out of a loving cup as he passed it. Learning that one of the expected guests had been a Heidelberg student and a duelist, he pictured for him two rabbits fencing. "Study hour in High Grade A," was the title of a rough sketch in which he showed the desks of his class-room, each seat filled by an animal, possessing some peculiarity of its occupant. Thus: a boy slow and stubborn, is portrayed as a mule; another, surly, is a bear; another is a monkey, "because he is funny and cuts up"; a goose is a silly boy; a pig, a greedy one, and a fox is one who is very sly. A girl, who is clever, is represented as an owl, and a boy, constantly crowing over his own achievements, as a rooster, etc. He himself having a peculiar walk appears as a lobster, "because a lobster walks kind of lop-sided," and the teacher, who was rather above medium height, as a giraffe. (Vide illustration.) The members of his band often figure in a variety of characters and called upon at the different seasons to contribute decoration for gifts, he will draw as rapidly as the suggestions are given.

But little is known of family history, except that mother died of phthisis.

Case B.—X. K. Specialty, music. Boy; high-grade; 17 years old. Pleasing address and courteous manners. Has a wonderful talent for music; plays equally well on piano and pipe-organ, either at sight or by memory, and improvises and composes without effort. Has had the benefit of a course in music at a European conservatory. Is an apt translator of foreign languages. Has wonderful hand-skill, which he is capable of utilizing, as purpose of the moment demands. Is an excellent type-writer and accurate above the average. From his tenth year, he had attended various schools without receiving the discipline which his needs required.

Case C.—L. W. Specialty, hand weaving. Male; 29 years old;

idio-imbecile. A mute; other senses normal. Understands everything that is said to him, and makes peculiar grunting noises in his efforts for speech. Could not learn to read and write, but is very deft with his fingers, weaving very rapidly intricate patterns, with colored worsteds.

Second child; born at full term; nourished by mother, was apparently healthy until one year old, when spasms developed, of which, however, there has been no recurrence. Father a farmer, slow of speech and action, was 37, and mother, who has a small goitre, was 28 at time of child's birth. Both parents mentally below par.

Case D.—J. I. Specialty, lightning calculation. Boy; high-grade; 15 years old; epileptic, spasms recurring monthly. Can read and write, and is fond of music and animals. A mathematical phenomenon; has wonderful facility with numbers. Can multiply, divide, add, and subtract as rapidly as numbers are called. When fatigued, or for several hours succeeding a spasm he does this very slowly, or not at all, but when fresh and in good condition, can calculate very rapidly, giving results almost simultaneous with the speaker's voice.

Born at full term; labor ordinary.

Case E.—A. E. Specialty, music. Male; idio-imbecile; epileptic, 30 years old. A dwarf; height 4 feet 1⅛ inches; weight 66½ pounds. Physiologic age about 60; psychologic age 10 years—a young man with an old body and a childish mind.

Vocabulary and understanding very limited, but has a wonderful ear for music. Can catch any tune he has heard once, reproducing it accurately on the mouth organ. Can pick out tunes on a toy piano, and enjoying his own performances immensely, will applaud himself vociferously, clapping his hands and shouting with glee. Could never learn to read or write, and is unable even to dress himself. Spasms occur not oftener than once a year, but are very severe.

Born at full term; ordinary labor. A crying infant, was dosed largely with so-called "soothing syrups." Had meningitis and did not walk until sixth year. Father, a day laborer, probably syphilitic; mother scrofulous and subject to "sick headaches." Both grandfathers were drunkards. Paternal grandmother and father had each a sister feeble-minded.

Case F.—W. L. Specialty, music. Boy; idio-imbecile; 13 years old. A musical prodigy. Semi-mute; speech limited to two or three words. A fair trial in kindergarten for four years enabled him only to distinguish colors, but with a wonderfully quick ear for music, learned readily to hum all the songs. Can catch any tune he hears and reproduce it accurately, humming with eyes closed and a rhythmical swaying of the body to and fro. With keen appreciation of time, he can distinguish march, waltz, polka, etc., beating time

with hands and changing readily with change of music. Asking him on one occasion for a song he had not heard for several years, he had some little difficulty in recalling a certain strain, and hummed it over and over, until he at last succeeded, and then he hummed it through without hesitation. He in this way reproduced with marvellous accuracy the principal airs of a light opera, which he had heard but once.

This case is illustrated and further described, under the head of Adenoma Sebaceum, Chapter XIII., Case 3.

Case G.—C. L. Specialty, music. Male; high-grade; almost 24 years old when photograph was taken. Came to us in eleventh year; was of average height and weight, but very childish for his years. Sight very defective, but other senses normal. Walked like an old person, with body inclined forward and step without elasticity. Could read, write and cipher, but extremely nervous; attention was easily diverted from anything except music, which was his passion, and in which he became absolutely absorbed. Made gradual but steady progress during seven years in both mental and manual work. Accomplished the school course and became quite a good carpenter. Always devoted to music, learned to play the cornet readily, composed quite well, arranging his pieces for the band unassisted.

Manly, thoughtful and quiet, of good moral tone, he was a leader among the boys and always for good. After leaving us he went west and was the band teacher in another large institution, and later became the leader of an excellent band in Chicago.

Born at full term; ordinary labor. Sickly in early childhood, did not walk until fourth year. Poorly nourished, living in condition of extremest poverty; very slow in developing mentally. Father, a butcher by occupation, was a drunkard and shot himself; mother, abused by husband, weak and nervous, died of "heart disease" at the age of 38, after having borne 12 children. All weak, ill-nourished, and having "head trouble," 10 died before reaching the second year. A sister who survives is said to be normal.

Case H.—J. O. Memory and mimicry. Boy; low-grade moral imbecile. Hydrocephalic; epileptic; 16 years old when photograph was taken. A dwarf; height 4 feet. Admitted to Training School in fourteenth year. Hands extremely small, speech perfect and large vocabulary. Vulgar and profane beyond description. Could distinguish between right and wrong, but chose always the wrong. Egotistic, would do almost anything to attract attention. Had a fair voice in singing; apparently learned to read and write, although a great deal of it was simply memorizing and imitating. His was a most unusual example of abnormal development of memory over other mental powers—a "memory prodigy" so to speak. Mental

limit reached in his sixteenth year; but old in iniquity, impudent, defiant, quarrelsome, obstinate, and disobedient, a breeder of mischief and a disturbing element in the schools, he was transferred to a custodial building, where under closer care and supervision he did very well for the remaining 4 years of his life. His previous history would have furnished material for the pen of a Zola. Condition congenital; the unusual size of his head was noticeable in his earliest infancy; in his fourth year it began to increase rapidly, and at 6 years of age he wore a 7½ hat. At this period, having attained the height of 4 feet, he ceased to grow, but developed wonderful power of memory, repeating songs, poems and long passages by rote, with an aptitude truly extraordinary. With quick perception was united a strong love of metaphor, making him peculiarly susceptible to the charm of rhythm in music and poetry. He learned to recite, without effort, whole pages of Milton and Shakespere, and to sing hymns and sentimental songs. Frequenting the theatres, he would on returning render with marked precision attractive scenes in the plays, taking the various rôles of the actors and actresses that had most impressed him. Lacking the care and guardianship so necessary to an irresponsible, this unfortunate child—tiny and deformed, a travesty of humanity—roamed the streets at will, a veritable montebank.

Naturally he soon fell into evil courses, and became the victim of the vicious. Profanity and slang, easy for him to acquire, vulgar allusions, a *double entendre*—cleverly picked up here and there—made him an unfailing source of amusement to a class of men who, applauding him vociferously, gave him whiskey and tobacco as a reward for his performances, and encouraged in every way his development in the school of vice. With astonishing alacrity he learned to smoke, chew, swear, and drink, and his companions were corner-loungers and the scum of society. Day after day he would be seen staggering, intoxicated, from saloon to saloon. A woman could not pass him without being insulted. The newspapers wrote up his career in the most sensational manner. Finally after 8 years, self-willed and incorrigible, this "*enfant prodigue*" became a veritable "*enfant terrible*" and, a nuisance to society the safety of his community demanded his permanent sequestration. He died in his twentieth year of softening of the brain.

Father a carpenter, 34, and mother, 21 years old at time of his birth. Ordinary labor, but deficient animation; nourished by mother. Parents extremely poor.

INSANITY.

Case A.—N. N. Recurrent mania; boy, low-grade, aged 12 years when photograph was taken. Came under my care at 6 years of age.

Limited vocabulary; speech nervous, spasmodic, and unintelligent. Obstinate and passionate; unclean day and night, unable to care for himself. Recognized color and form, knew a few letters of the alphabet and could sing simple songs. Powers of imitation and memory good, but was incapable of concentrating attention. Was given a trial in kindergarten with no result. Quiet at rare intervals, when amused, would suddenly, as attacks came on, strike and bite other children without the slightest warning or provocation, running wildly to and fro, screaming, overturning and mutilating furniture, tearing and discarding clothing, and climbing recklessly in the most dangerous places. During lucid intervals was much exhausted. Attacks increasing in frequency and violence, he was transferred to an insane hospital in his eighteenth year.

First-born, premature birth; labor difficult, with instruments; nourished by mother. Apparently normal until 15 months old, when he had several falls striking his head, and at 19 months a severe illness, after which became extremely nervous and excitable. Parents first cousins, were both extremely nervous. Father 33, and mother 34, at time of child's birth. History of phthisis and insanity in both families.

Case B.—W. D. Recurrent mania. High-grade, boy; 10 years old. Well-formed, clear rosy complexion, dark brown hair, and blue eyes. Has been at school since his sixth year. Can read, write, cipher, and knit, but powers of attention and imitation poor; is slow and backward. Speech perfect, excellent memory and vocabulary. Is obstinate, passionate, disobedient, and seems destitute of natural affection. Is fond of sitting apart, making grimaces, casting furtive glances and muttering to himself: "Fiend incarnate," "I am a perfect Turk," "Dirty pig," "Look at the old frog sitting in the corner," "Fool, fool, fool."

Music affects him peculiarly; will scream, kick and cry when he hears it, although at times will sing. Has periodical outbursts of mania, when, while sitting quietly talking to himself, will start up suddenly with wild eyes, singing snatches of songs, beating himself and attacking viciously other children. For long periods will refuse food.

Second child; born at full term; normal labor, nourished by mother, who was 27 and father 32 at time of child's birth. Has one brother considered peculiar. History of insanity in family of father, who, a monomaniac, abandoned wife to join a religious community.

Case C.—M. M. Recurrent mania. Girl; high-grade; aged 13 years. Small for age; pleasing features, clear complexion, brown hair and eyes. Choreic movements of face. Cleanly in habits. Powers of attention poor, but memory and imitation good. Given

to mimicry. Can read, write, draw, sing, and dance. Is affectionate. When coming to school at 8 years, was well up in primary work, except numbers and hand-training. Given special drill in these, improved for 2 years when, mental limit being reached, became erratic, peculiar, irritable and impatient with other children, making grimaces and disturbing classes. This condition rapidly increasing, soon merged into periods of violence, and she became uncontrollable and cruel. During lucid intervals was quiet and obedient.

Second born; labor difficult, but without instruments. Fed artificially. Father 32 and mother, who is very deaf, was 31, at time of child's birth. Peculiarity first manifested in great excitability when child was 3 years old.

Case D.—L. W. Recurrent mania. Boy; profound excitable idiot, epileptic, 18 years old. A mute, understanding very imperfectly what is said to him. Unclean in habits and incapable of self-help. Choreic movements of face. Cannot be induced to take meat or milk. During attacks of mania, which occur irregularly, is brutal and cruel; will beat himself, bite and strike other children, always discriminating and attacking the smaller and weaker ones. During lucid intervals, is gentle and tractable. Will amuse himself by the hour, throwing bits of chip and straw high in the air and jumping for them. As attacks increase in frequency and violence, he becomes more dangerous.

Second child, born at full term; labor normal; fed artificially; father 31 and mother 26 at time of child's birth. Mother much troubled during pregnancy by illness of father. Spasms occurred at seventh month and continued through second year.

Case E.—R. H. "*Folie Circulaire*" or circular insanity. Boy; profound excitable idiot; dwarf, aged 15 years. Came to me in his twelfth year. Fair complexion, rather pleasing features; internal strabismus of right eye, and marked nystagmus of both. A mute, hearing perfect, understanding very simple language; unclean, helpless and devoid of natural affection, even for his mother whom he recognized, but to whom he was indifferent. The period of exaltation lasted from several days to 2 weeks; during this, the boy, wildly excited, with glaring eyes and screaming violently, would beat unceasingly the center of forehead and left ear—never the right—causing bruises and running sores. This would be followed by a period of extreme depression, lasting from 2 days to a week—never longer—during which he liked to have his head covered with a handkerchief, and would sit quiet with eyes cast down. Out of this he passed into the nervous stage—his lucid interval—during which, restless, noisy, moving body to and fro, making hissing, grunting

noises, he would sit continually playing with strap or string, winding and twisting them around his nervous hands. This also lasted for about a week, when the circle would begin again. Died of phthisis in fifteenth year.

Third child born; instrumental delivery. Father 29, mother—hysterical and excitable—25 at time of child's birth.

EPILEPSY—JACKSONIAN OR FOCAL.

CHAPTER XIX.

ILLUSTRATIVE CASES (*concluded*).

EPILEPSY: GRAND MAL; PETIT MAL; JACKSONIAN OR FOCAL EPILEPSY; PSYCHIC EPILEPSY.

GRAND MAL.

Case A.—B. L. Boy; high-grade moral imbecile, aged 15 years, came to us at 13. Light brown hair, and blue eyes, with a winning smile and an engaging personality. Vulgar, passionate, untruthful, and dishonest; delighting to play with fire and in tantalizing children. Self-willed and persistent to a degree, in accomplishing a purpose upon which he has once set his mind, but absolutely unstable in aim, wanders from one thing to another, and although possessing fair ability, brings no work to any kind of perfection and will never succeed. Is fond of pouring over dictionaries and encyclopædias, and has quite a fund of general knowledge.

Spasms began apparently without cause, when he was 9 years old, and continued at irregular intervals, increasing in violence and frequency, until thirteenth year when they yielded to treatment, and for a period of 10 months there was entire cessation. Has now an occasional convulsion.

First born; full term; ordinary labor; nourished by mother, who was very nervous during gestation. Father 23, and mother 20, at the time of child's birth.

Case B.—L. J. Boy; high-grade, aged 14 years. Came to us at 11 years, when photograph was taken. Black hair and eyes, sight and hearing perfect. Childish for his age but bright and under special training has made excellent progress. Fond of boys' plays, but nervous, restless, and very irritable. Inherits deftness in handwork from his father, and did beautiful work in sloyd.

Spasms began without warning in tenth year, and have continued at intervals of 9 months, but their violence has been modified by treatment.

Parents Jews, refugees from Russia, two weeks after marriage; the mother suffered great anxiety during gestation. First born; ordinary labor; nourished by mother. Father 23, and mother 27, at the time of L.'s birth. Father and his entire family are goitrous. Another son is feeble-minded.

Case C.—P. M. Male; low-grade; 32 years old. Red hair, gray eyes, sight and articulation poor, but hearing and vocabulary fair. Sialorrhœa marked. Neat in dress, is capable of self-help and simple housework. Spasms frequent and severe.

First-born; full term; ordinary labor. Was a "blue baby." Father 26, and mother 16, at time of P.'s birth. Father's sister insane.

Case D.—A. H. Boy; middle-grade; 10 years old. Pleasant face, brown hair and eyes, excellent vocabulary, correct enunciation, and is fond of music and of animals; recognizes color, form, and numbers; can read, write, and sing. Can care for himself in every way and aid in simple housework. Is cleanly in habits, but irritable, and disobedient. Child developed epilepsy when 3 years old. Spasms very severe; *status epilepticus* frequent.

Second child; difficult labor. Father 30, and mother 24, at time of A.'s birth. Father syphilitic and a drunkard; mother, an epileptic, died of cancer. Maternal grandfather was a drunkard and paternal grandfather died of phthisis.

Case E.—W. H. Boy; idio-imbecile, 12 years old. Came under my care at 6. A graceful, pretty child, with brown hair and eyes. Could speak only a few words voluntarily, but articulation fair in repeating what is said to him. Careless in dress, could only partially help himself; occasionally unclean. Could sing, but knew nothing of color or form. In improvement class, became less wild and erratic and more obedient. Learned to do a little knitting. Spasms frequent and severe, usually preceded by a period of nervous excitement, when he will divest himself of his clothing and run around the room in a state of nudity.

Fourth born; full term; partially nourished by mother. Was healthy until second year, when epilepsy developed.

Case F.—L. S. Male; middle-grade, 27 years old. Entered institution at 10 years of age. Learned to read and write quite well, and made marked improvement in hand-work, becoming an efficient aid in household service, although spasms—which developed in second year—are frequent and severe.

Eighth child; born at full term; ordinary labor; nourished by mother, who suffered great anxiety during gestation. Father 47, mother 42, at time of L.'s birth. Maternal grandmother died of phthisis. One brother had goitre.

Petit Mal.

Case A.—G. H. Boy; high-grade; aged 14 years. Came to us at 10 years. Pleasant expression, blue eyes and light hair; cleanly

in habits. Can read and write, recognize color and form. Powers of attention, imitation, and memory good. Has a violent temper, and will bite other children.

The attack is characterized by sudden paling and flushing, crossing and throwing up of the arms. The mental faculties are momentarily disturbed without loss of consciousness. At first recurring daily, treatment has modified these attacks to about 10 a month.

Sixth child; ordinary labor. Father, a painter, 40, and mother 32 at time of H.'s birth. There is a record of a fall when one and a half years old.

Case B.—T. J. Male; middle-grade; 23 years of age. Came to us at 15 years, when photograph was taken. Rather dull expression, pale complexion, brown hair and eyes. Learned to read and write, but his medium of development has been chiefly through the hands. Is deft at any kind of manual work; has been in shoe-shop for a number of years, and makes a very good shoe; can mend clocks and umbrellas and has been quite successful in attempts at wood carving. During attacks, which last but a few moments, grows suddenly pale and occasionally is convulsed, but without loss of consciousness. Attacks modified by treatment, occur only at long intervals; never more than 3 during the year.

Second child; ordinary labor; nourished by mother. Father, an ignorant laborer, *27*, and mother *22*, at time of J.'s birth. Father and both grandfathers drunkards. Paternal grandfather died of phthisis.

Jacksonian or Focal Epilepsy.

Case A.—D. F. Boy; middle grade, 14 years old. Came under my care at 12 years of age. Had been much neglected. Round head, brown hair, blue eyes, perfect speech, good teeth; is fond of children, recognizes colors, knows the alphabet, can sing, wash, dress, and care for himself in every way. Powers of attention, imitation, and memory very poor. At times is vulgar and profane, but as a rule is well-mannered. When 8 years old, he suddenly without any apparent exciting cause developed epilepsy.

His is a case of idiopathic epilepsy of the Jacksonian type. The epileptogenetive center corresponds with and is limited to the cortical area for the right hand and wrist. The "signal symptom," or aura, is experienced several minutes before the attack begins. Patient says that, before he came to me, when he was attending public school, he was able, after experiencing this aura, to leave the class-room and run across the street to his home before the onset of the seizure. The aura, as he describes it, "feels like ants crawling over my hand" (formication). The attack begins with clonic move-

ments of the fingers and thumb, then of the wrist and elbow; these lasting half a minute or more. Consciousness is retained throughout, and patient watches in a terrified manner the involvement of the different groups of muscles. These seizures occur as often as once a day, unless controlled by bromides.

Born at full term; difficult labor. Father, by trade a harness-maker, aged 24, and mother 18, at time of child's birth. Mother, insane. Paternal grandmother died of phthisis.

Psychic Epilepsy.

Case A.—H. D. Male; middle grade; 23 years old. Came to us when 14 years old. Head well-formed, brown hair and eyes, sight and hearing perfect, excellent vocabulary, and is active, noisy, and at times obstinate. Powers of attention, imitation, and memory fair. Does excellent work in school; can read and write, but has attacks of nervous excitement followed by prolonged periods of automatism—sometimes lasting for days—during which, unconscious of what he is doing, he simply walks as in a dream; will stand in one place until told to sit; will eat when commanded, but does nothing of his own volition. For the time being he is a veritable automaton, but when the attack passes he is again bright and active. Very deft with fingers, he is quite useful in the carpenter shop, and in domestic work.

Eighth child; nourished by mother. Father, a drunkard—by trade a harness-maker—aged 44 and mother 38, at time of H.'s birth. Mother was at one time insane. H. had a fall during infancy.

Case B.—W. F. Male; middle grade; age about 40. A vagabond; unable to read and write. Alternating from emotional to automatic states; does all sorts of sensational things, after which he subsides into an automaton, doing nothing voluntarily, guided only by the will of another. Thus, on one occasion, at three o'clock in the morning he ran through a village ringing a bell and shouting fire, calling the people and warning them to flee for their lives. After this followed a period of depression, lasting several weeks. Again, he wandered through his native town, begging for money to buy "a hole to live in." Many, who did not understand, regarding the matter as a joke, gave him small sums, ranging from ten cents to one dollar and very soon he had collected money sufficient, and actually bought a piece of ground, containing a hole in which the sewerage of the town emptied. Then he borrowed a horse and wagon and immediately proceeded to fill up the hole. The people of the community, much perplexed, then used every argument with him, but he remained obdurate, until they promised him a house and garden, and they were actually compelled to subscribe some hun-

CASE A.

CASE B.

EPILEPSY — PSYCHIC.

dreds of dollars, sufficient to purchase him quite a decent residence. After this, during one of his periods of depression, he disappeared for some months—as he will often do, when in this state—and after wandering over the mountains for varying periods of time, will suddenly turn up in the most unexpected fashion.

Case C.—C. H. Female; low grade; 30 years of age. A deaf-mute; made no progress in school, except learning to sew and knit. Emotional, excitable, has screaming spells, often of several weeks' duration unconscious of what she is doing, followed by periods of automatism in which she acts only under the will of another. Will assume any position and maintain it until otherwise directed.

She has one imbecile brother, and father is a drunkard.

CHAPTER XX.

THE CASE OF SAMUEL HENDERSON, MURDERER.[1] RESPONSIBLE OR IRRESPONSIBLE?

THE host of juvenile offenders filling our police courts and the startling accounts, with which the daily papers teem, of crimes traceable to youth of tender age, is attracting the interested study of criminologists, and drawing many thoughtful minds to the consideration of cause producing such effect, and to careful pondering upon the degree of responsibility or of irresponsibility of this class.

The trial and conviction of Samuel Henderson, aged fifteen years, of the murder of Percy Lockyer, aged five, makes a valuable addition to the annals of criminology and of sociology, as showing the possibility of crime absolutely motiveless, beyond the momentary impulse of a nerve storm, and the danger to society of an uncontrolled irresponsible element in its midst. The extreme youth of both appeals to one not less than does the sense that each was, in a measure, the victim of ignorance and of circumstance.

The scene of the tragedy was Glackin's woods, in the suburbs of Philadelphia, and the details of the case are these: On the afternoon of Friday, January 14, 1898, Percy Lockyer, playing in an adjoining yard with Willie Addison, the son of a neighbor, wandered off with his little playfellow. At half-past five, the parents sending for him, were alarmed to learn that both children had been down in the woods with a boy who had hidden Percy's clothing in a tree, and that Willie had returned, leaving Percy there. Mr. Lockyer, an engineer by trade, being incapacitated by temporary lameness, sent his older son with a friend to investigate. They returned with no definite tidings, and the family, growing most anxious as night came on, determined to at once notify the police. A young girl, Bridget Foley, overhearing the conversation at the patrol box, said that she had seen Percy Lockyer and Willie Addison, at about two o'clock, talking with Samuel Henderson at the schoolgate; later they had crossed the fields in the direction of the woods, Henderson—the path being muddy—carrying little Percy on his shoulder, and that between four and five o'clock she had seen Henderson returning alone. The officer, in company with young Lockyer, went immediately to the Henderson home and questioned Sam-

[1] Reprinted from the Alienist and Neurologist, January, 1900.

SAMUEL HENDERSON.

PLATE LIII.

uel, who denied the story *in toto,* saying that he had been at school all that afternoon. His manner, however, aroused the suspicions of both, and Lockyer reported to his father that Sam had appeared to hesitate, as if he knew more than he cared to tell.

During the night a fruitless search was made through Glackin's woods by sympathizing friends and the distracted and disabled father. The next morning Bridget Foley, carefully interrogated, adhered to her original statement, while Henderson was equally vehement in disclaiming any knowledge of, or even an acquaintance with, Percy Lockyer.

Mr. Lockyer, the afternoon of the same day, went again to the woods with a police sergeant and Willie Addison, hoping to locate the tree where the clothing was said to have been hidden. This the child failed to do, but just as they were about to separate, the officer discovered, lying in the fork of a tree, a coat and a hat that the unhappy father recognized at once. All that day the search was continued through the woods, in farm-houses, and in the neighboring villages without result. On Sunday morning, January 16, two police officers, again going over Glackin's woods, at Reddy's Run noticed a bit of plaid in the stream, and further examination revealed Percy's body lying in about fourteen inches of water. It lay face down, hands extended, left leg straight and the right bent, with a large rock on the right hip and another on the back of the head. A red handkerchief, tied around the neck with a double knot under the left ear, was tight enough to have impeded circulation without arresting respiration. Superficial cuts, lacerations, and contusions disfigured the face and hands. There was a stab wound on the shoulder and one under the fifth rib, penetrating the left lung, with some signs of hemorrhage, but death had evidently been caused by drowning.

Samuel Henderson, when later confronted by Bridget Foley, still denied having been with the children. "I knew you by your cap and coat," she said. "I did not have this coat on," quickly replied the boy. "What coat did you have on?" questioned the officer. "My light one," he answered. "Then she did see you?" "Yes." In response to closer questioning and adroit suggestions he went on to tell (even demonstrating) how Percy had fallen from a tree upon some broken sticks and branches, how he had afterward run down the hill in the direction of the creek, and that was the last he saw of him. Continuing his contradictions, however, he gave yet another version, and averred that they were playing "Wild West," saying: "I was sharpening a stick at the foot of the hill with a potato knife, and as Percy ran down, it stuck in his heart, and the blood came squirting out, and he fell on his back and didn't speak a

word when I called him." He acknowledged that, after this, becoming frightened, he put the body in the creek, first mutilating it to prevent recognition, and then placing stones on it to keep it down. On this confession he was committed to the Philadelphia County Prison to await trial.

Being called as an expert for the defense, I made careful examinations of the boy, and in frequent conversations with him and his parents gathered the following data: Maternal great-grandfather died of cancer of the throat; maternal grandfather and his two brothers died of paralysis. Paternal grandfather was a moderate drinker and received, while in the detective service, a blow on the head from which he never wholly recovered; had "flighty spells," was erratic and peculiar, and died during a paralytic seizure. Mother's nephew is an epileptic, and two cousins died of phthisis. Samuel and his parents are natives of Pennsylvania, as are also two other children, a boy and a girl, aged respectively eight and fourteen years, both of whom are said to be mentally defective. The mother keeps a small variety-shop; the father, who is a ventriloquist, has a Punch-and-Judy show, and both parents have at various times traveled with "Buffalo Bill."

Father decidedly under par mentally. Was 28 years old, and mother 18, at time of Sam's birth. Mother possessed of an attractive personality, is intelligent and remarkably well educated for one of her class, but extremely nervous, and has been a sufferer from trifacial neuralgia for years. Was troubled with dropsy prior to the birth of each of her three children, of whom Samuel was the first-born. During the sixth month of gestation she was ill for six weeks, suffering severely from gastric disturbance. The child Samuel was born at full term, without the aid of instruments, although the labor was extremely difficult and lasted for three days; he was what is known as a "blue baby," and had a *caput succedaneum.* Nourished by mother, he was healthy until the sixth month, when an attack of cholera infantum lasting six days was followed by an attack of meningitis lasting six weeks, during which time ice was kept constantly applied to his head; he lay in spasms for five hours, with form rigid, and eyes set; apparently dead, preparations were begun for his funeral, when he revived. He has had almost every disease known to childhood—measles, whooping-cough, varicella; when four years old, during a severe attacks of scarlet fever, he was unconscious for a long time; later he had two attacks of typhoid fever—one when 10, the other when 13 years of age. After each illness his deterioration, both mental and physical, was such as to occasion comment. He suffers now with frequent headaches. With that uncertain memory peculiar to imbeciles—phenomenally accu-

rate in some respects, absolutely unreliable in others—he memorized his lessons with difficulty, and while studying would frequently beat his head and say: "The man who made this book tried to confuse me. Some day I will run against a stone and bump my brains out." He reads the daily papers understandingly, and delights in dime novels, in the adventures of Indians, of Jesse James, etc.

He recognizes form and color, discriminates between tints and shades, can count to the hundreds, and appreciates numerical values. Writes fairly well, but is unable to draw; hands not being properly trained, he cannot drive a nail, although his powers of attention and imitation are good and he has learned to do simple housework. His table manners are fair—he is not gluttonous, masticates properly, uses both knife and fork—and he can wash, dress, and care for himself in every way. Addicted to *cinedia,* but otherwise his personal habits are cleanly.

Choreic movements of the face betray an exceedingly nervous temperament, further evidenced by paroxysms of laughing and weeping often without cause or on the slightest provocation, and by sulky spells of several hours' duration. Both obstinate and passionate, he will destroy clothing and furniture under the influence of nerve-storms. Understanding commands, he can be trusted, if willing and interested, to do an errand. Obedient when so disposed, affectionate at times, he is simply the slave of a highly emotional nature without the controlling power of the moral sense, in which he is absolutely lacking. We find him, therefore, cunning, untruthful, vulgar, profane, careless with fire, heedless of danger, and a tramp, continually straying from home. He is fond of music, of animals, of boys' games, such as shinny, marbles, and kites, and also of dolls. He is devoted to babies, whom he will fondle, yet pinch at the same time. He likes to play with little children, whom he will, nevertheless, terrorize, but older boys tease and enrage him.

The physical examination, made in company with my assistant, showed the boy to be undersized—height 5 feet 1½ inches—of slender build, but body well nourished and muscular development good. Weight 98 pounds; muddy complexion; sullen expression when features are at rest, but at other times pleasant. Eyes dark brown (maroon), bright, restless, and alert. "Thumb-sucking mouth," 1⅞ inches in length and $\frac{15}{16}$ of an inch in breadth; lips full, thick, and apart, with slight protrusion of tongue and marked sialorrhœa. Teeth fairly regular and in good condition in superior maxilla, but somewhat decayed in the inferior; upper teeth protrude noticeably, the lower also but in a less degree. Hard palate wide, fairly well formed, and but slightly corrugated. Postnasal adenoids; tonsils somewhat enlarged; uvula small and pointed; tongue clean.

Stammers slightly; articulation defective and pronunciation careless, invariably substituting f for th, as in "fink" for think, "fought" for thought, and "fird" for third. Asymmetry of face noticeable; slightly fuller on left side along ramus of inferior maxilla, and on left side at angle of mouth; infra-orbital region, left side, slightly fuller than right.

Small scar over right eyebrow and several small scars on forehead. Hair dark chestnut, coarse, thick, wiry, and stubborn, so that examination of head and measurements were made with some difficulty. Head narrow through occipital region, and compressed and flattened at parieto-occipital junction. Frontal bones somewhat receding; parietal region flat and narrow, with slight tendency to prominence of parietal cornu. Temporal bones fairly good. The head measurements, although showing nothing so pronounced as to attract the attention of the ordinary observer, are yet far from normal: Bimastoid, 14 in.; binaural arc, 14 in.; greatest circumference, 21¼ in.; trachelobregmatic arc, 22 in.; glabella to occipital protuberance, 12 in.

Right ear, double tragus; length, $2\frac{7}{12}$ in.; breadth, $1\frac{6}{12}$ in. Unusually large lobule, thick, corrugated and square; length, ⅝ in.; breadth, 1 in. Rudimentary tubercle of Darwin. Angle, 45 degrees plus.

Left ear, double tragus; length, $2\frac{7}{12}$ in.; breadth, 1¼ in. Lobule not quite so wide and thick as the right; length, ⅝ in.; breadth, $1\frac{1}{12}$ in. No tubercle of Darwin. Angle, 45 degrees plus.

Circumference of chest at nipples, 29 in.; circumference of chest at xiphoid, 28 in.; circumference of abdomen at umbilicus, 27½ in.; circumference of right arm, 8 in.; circumference of left arm, 8¼ in.; length of right arm, 10 in.; length of left arm, 10 in.; circumference of right forearm, 8 in.; circumference of left forearm, 8 in.; length of right forearm, 16¼ in.; length of left forearm, 16½ in.; circumference of right thigh, 16 in.; circumference of left thigh, 16 in.; length of right thigh, 15 in.; length of left thigh, 15 in.; circumference of right leg, 11½ in.; circumference of left leg, 11½ in.; length of right leg, 18 in.; length of left leg, 18 in.

Right-handed, but the hands, which are bathed constantly in perspiration, are slightly asymmetric. Little finger of right hand is shorter than the left. Index-finger of right hand has cicatrix on palmar surface. Small scar on dorsum of left hand.

Sensation normal.

Sight normal. Pupils equal and react to light; focal distance about fourteen inches.

Hearing, as tested with watch, normal.

Smell normal. Tests were made with mustard, cloves, pepper,

camphor, vinegar, and ammonia. Of the mustard, he said: "It is some of that cheap mustard"; and of the cloves, "I don't know the name, but they are black things that you put in catsup."

Taste normal. Upon being tested with sugar, vinegar, salt, alum, quinine and tannic acid, he said: "That's quinine, I hate it; had to take it for a year"; and of alum: "White like a rock, bitter"; after a time he remembered its name; of tannic acid: "It is bitter, like a root."

Gait sluggish and slightly shuffling, stamps in going up or down stairs. Perfect coördination; station good. Knee-jerk increased.

Slight dilatation of the capillaries.

Temperature in both axillæ, 98° F.; in mouth, 99° F. Pulse 96.

Heart normal in position, size, and action.

Respiration, 24 a minute.

Appetite and digestion good. Liver, spleen, kidneys, and bladder normal.

On my first visit to the prison, I found the boy dull, but evincing in conversation that erratic and contradictory tone peculiar to the imbecile. Wishing to test his memory and articulation, I asked him to repeat the sentence, "Around the rugged ruin the ragged rascal ran," which he did fairly well. Chatting further with him on general subjects, I asked if he could make a kite. "Yes," he replied, "but it is cheaper to buy one; you can buy one for a penny, but when you make it you have to buy your paper and get your string and paste, and you might cut your finger while you are cutting your sticks, for a knife often slips." At my next visit, in company with his counsel some weeks later, Sam had forgotten me until I repeated "Around the rugged ruin, etc.," when he smiled and brightened up. No allusion to the crime had been made on the occasion of my previous visit, but now when I broached the subject, he replied quite readily to interrogations, although with his usual contradictions, until sharply rebuked by the lawyer. Out of the tissue of mingled falsehood and illogical admissions was his confession drawn.

"Sam, I want you to tell us all about killing Percy Lockyer."

No answer.

"What are you here for?"

"Killing Percy Lockyer."

"When did you kill him?"

"Fourteenth of January, this year."

"How did you kill him?"

"Just killed him."

"With what did you kill him?"

"With a knife."

"Where did you strike him?"
"Right here" (placing his hand over the præcordial region).
"What sort of a knife did you use?"
"Potato knife."
"Why did you kill him?"
"For calling names."
"What names did he call you?"
"Indian, Possum-law, Nigger-lip."
"Sam, what did he mean by possum-law?"
"Oh! He just put the law to it."
"When you struck Percy, what did he do?"
"He dropped."
"I thought you tied him to a tree."
"I didn't tie him to a tree."
"Why did you kill him?"
"For calling names."
"What did he do when he fell?"
"Just lay there, stretched."
"Did you mark him?"
"Marked him in the face."
"How did you mark him?"
"Hit him with the knife."
"Where did you hit him?"
"Hit him here and here (placing his finger on the parts of his face), and then he stretched."
"Why did you mark him?"
"To disfigger him."
"Why did you disfigure him?"
"Because they couldn't tell him."
"What did you do with him after that?"
"Put him in the creek."
"And then what did you do?"
"Put two rocks on him."
"What did you do then?"
"Went home."
"What did you do when you went home?"
"Just the usual way."
"What do you mean by 'the usual way?'"
"Cut sticks, made supper, spread the table, made coffee."
"Tell me how you make coffee."
"Just put—you know there are five in the family—five or six tablespoonfuls of coffee in a kettle; some put coffee essence in, some people don't; we always do put coffee essence in; then after awhile put a cup of cold water in, and put a rag over it because it won't lose strength."

"What happened after you went home?"
"They were looking for him over the street."
"Where did you go?"
"Stayed around the house."
"Who came to see you?"
"Sergeant Murphy."
"What did he ask you?"
"Do you know where the boy is?"
"What did you tell him?"
"Yes. He took me over to show. I didn't show him right."
"What did Sergeant Murphy do then?"
"Took me down and locked me up. I did not tell the truth."
"Why did you show him the wrong place?"
"Four policemen told me not to tell. They were all good friends of my father."
"Now tell me why you showed him the wrong place."
"To get out of it."
"Will you ever do anything so wrong again?"
"Pennsylvania won't hold me once I get out."
"Where will you go?"
"Out West, to my aunt."

In direct contrast to the apparent callousness shown in this narration we note his fondness for dolls, his love for babies, his care for children (manifested in his lifting the little boy on his shoulder over the muddy fields), and his love for animals, evidenced in a story of a pet squirrel that had escaped. He told me how it had stopped now and then to look at him as it leaped from tree to tree in its efforts for freedom. "My sister wanted me to hit it, but, oh! I couldn't, I couldn't. But she did," and his eyes grew large and misty as he told me how "it dropped and didn't move any more."

"But you killed little Percy," I said.

"Oh—yes—that—that—was different."

He had acquired all the *argot* of the prison: told how he amused himself by putting pepper on candy, lowering it through the window by a string to the prisoner in the cell below, and how intensely he enjoyed it when the man swore at him; how he talked to the other prisoners through the closet-pipes and registers, and how in this way news was transmitted from cell to cell; also how he had been initiated into the mysteries of the "wall telegraph," another means of communication; how, on the first night he came, the prisoners were all anxious to know who he was, and finally the inmate of the cell adjoining had taught him the telegraph taps, and how they bade each other good-night by this means, through wall after wall and

tier above tier. He said that this was against the rules, and he would get a "flamming" if caught, but he would give me an example if I would watch so that the keeper might not surprise him—indeed, through it all, he himself kept a furtive eye on the door. When his dinner came, he showed how he piled up his boxes of playthings in front of the register to keep the food warm, saying, "I always do this on Sunday with half my dinner, as they don't give us any supper Sunday night."

On the occasion of my next visit, I found him very much distressed and searching anxiously for something, which, at last, to his great delight, he found. It proved to be only a small card—an advertisement of playing-cards—that he valued very highly.

Rough as he was at times, politeness with him seemed in a measure intuitive. Once, while making the examinations, in turning suddenly we came in contact, and he said, "Excuse me." Twice, I dropped my pencil, which he immediately picked up.

Asking if he would like to have a book, he replied: "No; my lawyer told me not to read much. I get the Sunday *World;* that gives me more news than any other paper. But," he continued, "I don't read about the blowing up of the 'Maine.' It makes me nervous, and I can't sleep." Asked if he played with dolls, he looked up in a cunning way and replied: "Mother told you that"; then crossing the cell to a table, whereon lay three paper dolls, his eyes suddenly filled with tears and his lips quivered when he found the dress of one torn.

In common with all imbeciles, his egotism is extreme. "Did you see anyfing in the papers about me?" he asked. "What?" "I'll show you; I cut 'em out," and he proudly produced from a little note book a number of newspaper clippings relating his first appearance in court. "I went to plead guilty and I fought maybe you was there," he said. He called my attention to the point that the papers made of his being insane. "But, Sam, you are not insane, are you?" I said. He laughed and replied, "I don't know; but I'm sorry I'm the fellow as done it." "Would you do the same thing again if you were let out?" "No, I've had lesson enough."

As I turned to leave him, he said: "I want to tell you somefing. When I went to court—after I got home I sweat awful and I have slept worse at night since I went to court. I had the headache," pointing to his forehead, "there all day yesterday. The people are so dreadful here, yelling and knocking, and then the cats outside are so bad. I wish I had a pistol so as I could kill 'em," and then he laughed.

The trial was a speedy one, covering in three days the examination of thirty-three witnesses on the part of the Commonwealth, in-

cluding expert testimony, and three for the defense—the mother of the prisoner, my personal assistant, Dr. Frank White, and myself. Exhaustive arguments were made by the lawyers on both sides, and after a thoughtful and impartial summing up in the charge to the jury, a verdict was returned of murder in the second degree, based on irresponsibility. The judge deferred sentence, but finally, after consideration, sent the boy to the penitentiary for twenty years, as the only means of protecting alike society and the poor unfortunate. This verdict is clearly defined in a subsequent opinion given by Mr. W. G. Keir, the defendant's counsel: "The law of Pennsylvania has made no provision for the conditions of limited responsibility in individuals as regards criminal liability. There is only one verdict that may be rendered in relation to a condition of mental weakness and that is, 'Not guilty, on the ground of insanity.' In the Henderson case such a verdict was not rendered, but a verdict of 'Guilty of murder in the second degree.' The Commonwealth pressed for a verdict of murder in the first degree, and if the jury had believed the evidence produced by the Commonwealth to be true, there was no other course for them but to render such a verdict. Their four or five medical experts testified as to the full sanity of the defendant, and as the evidence further showed, if such was the condition of his mind, the murder was willful, deliberate and premeditated. Therefore under the statute, the defendant was guilty of murder in the first degree. The jury undoubtedly failed to believe the testimony of the medical experts for the prosecution, but certainly did consider as true the testimony offered for the defendant, as they rendered a verdict in accordance with the evidence of the defense.

"This testimony indicated a limited responsibility on the part of the defendant. The testimony did not show that he was totally irresponsible, but that there was a lack of full mental power owing to a congenital weakness. The jury, believing that the boy was weak-minded, thought it would be exceedingly unsafe to set him free and rendered a verdict of 'murder in the second degree' with the thought undoubtedly in their minds that it would mean custodial care for some years to come, as finding him 'not guilty on the grounds of insanity' would probably give him entire freedom, and juries only, as a rule, acquit on the ground of insanity where the defendant is plainly a raving maniac."

In the impaneling of the jury it was difficult to find "twelve good men and true" who either had not formed a previous opinion or were not at once prejudiced by the appearance of the boy. The District Attorney outlined for them the different degrees there were to consider. "The law," he said, "divides the age of responsibility

into three parts. Under seven years no one can commit a crime. Between the ages of seven and fourteen the law takes a step forward, and says one may commit a crime, even the highest kind, but the burden of showing capacity to commit crime rests on the Commonwealth. From the age of fourteen to twenty-one another step forward is taken. Then the presumption of the law is that a person is responsible and capable of committing crime.

"The prisoner had passed the age of fifteen by a few months. In his case, therefore, is a presumption of sanity until the contrary is proved, and a presumption of his innocence until he is proved guilty." He then explained that under the indictment, four verdicts could be found: Not guilty, on the ground of insanity; murder in the first or in the second degree; and manslaughter. If there was a specific intent to take life, it was murder in the first degree, and he hoped to prove to the jury that this boy was guilty of murder in the first degree or that he was innocent because he was insane.

The expert witnesses for the prosecution included a number of well-known specialists, each eminent in his own particular line, yet claiming no *specific* experience in idiocy or imbecility. Opportunity they had had for a comparative study of mental conditions and diseases of children in cases occurring in their practice, but they could not be so familiar with imbecility as was one who had made it a life study.

It is impossible to comprehend or apprehend the eccentricities, the vagaries, the thousand and one contradictions, the infinite phases of abnormality, that shade off and merge so as to render difficult even a broad classification of some cases of imbecility after weeks, often months, of careful observation.

It is not to be wondered at, therefore, that the experts for the defense, in common with the general public, refused to accept the many contradictions that are included in my daily experience, namely, that a defective may have a phenomenal, but no residual, memory; that, often more clever than a normal child, he may develop capacity for music, drawing, or painting to an unusual degree, and yet be absolutely lacking in ability to perform the simplest primary school work; that he may be trained to work in one line or routine in which he may be trusted perhaps with a certain degree of responsibility, although outside of that one thing his childish heedlessness may cause ruin or disaster; that a certain inhibition to pain peculiar to his class may permit one to watch with perfect composure the amputation of his own finger, and yet, on account of a certain lack of quality in his general physical make-up, he would succumb readily to some trivial ailment. In the same way an emotional nature is coupled with an utter lack of will-power, and poor

judgment makes him the victim of nerve-storms, alternating between tenderness and cruelty without logical cause or reason, amounting often to an utter absence of moral sense—a nature, therefore, *anchorless.* These are but a few of the facts, familiar to workers among the feeble-minded, which the world in general, including many scientists, cannot grasp.

The experts for the Commonwealth agreed as to finding the boy untruthful, vulgar, and profane, with criminal tendencies, but in their opinion, judging from his own version, he could not have been insane at the time of the commission of the crime, nor did he, during their examinations, exhibit any signs of imbecility.

The head measurements they affirmed to be normal—they had found no asymmetries other than those often met with in normal persons, and no evidence why the prisoner should be considered irresponsible. This opinion was adhered to in full view and in the presence of the malformed head, the drooling mouth, and the idiotic grin of the boy who leered from the prisoner's dock even when the verdict was rendered.

During my study of the case, I was careful to secure the head measurements of eleven boys—ages ranging from 13 to 15 years—selected at random by the principal of a public school as average types, and in no single instance did they correspond with those of Henderson.

Careful anthropometric examinations and subsequent study of the family history, together with repeated conversations with the boy and with his parents, have convinced me that even if he had not committed the crime, there is still sufficient evidence to class him as an imbecile. Granted that there are no striking asymmetries and that similar stigmata may be met with in normal people, such a combination as existed here could never be found in any one normal person. Thus it is impossible to picture a healthy, happy, careless boy, within six years of attaining his majority, who laughs and weeps many times a day without cause, who, finding in little children his dearest playfellows, could calmly recite the murder of one, although shrinking at the thought of the death of a squirrel that for him to kill was an impossible thing; who, indifferent to the loss of home and friends, listening with a leer to a verdict that might bring him life imprisonment, would yet shed copious tears over the torn dress of a paper doll. The boy, like so many of his class, is a series of contradictions: he is tender and cruel, ingenuous and crafty, phlegmatic and nervous, unfeeling and yet affectionate; he is open, frank, artless, secretive, shy, deceitful, truthful in many ways, but also an accomplished liar. Thus atavism and environment have combined to form a *moral imbecile,* in whom the moral sense or

moral faculty is either blunted or altogether absent. He may discriminate intellectually between right and wrong, but, being absolutely destitute of will-power, is utterly unable to resist evil impulses.

This theory, derived from and verified by actual investigation of thousands of defectives in every stage of existence, demonstrates the presence of a dangerous element in our midst, an element unprotected and unprovided for. The safety of society, therefore, demands its speedy recognition and separation, in order to arrest a rapid and appalling increase, and, furthermore, its permanent detention lest it permeate the whole body socialistic. So much for self-preservation—the egoistic side of the question! But there are also altruistic considerations: the duty of society toward the unfortunate and innocent perpetrators of motiveless crimes, of whom Henderson is a fitting type. By what right, human or divine, does society, in this age of civilization, first prepare and educate him for the highways of vice, placing in his hands instruments of ill—for that is what the co-education of abnormal and normal does do—then, after the deed, which is but the natural outcome of this abnormal, ignorant training and neglectful care—by what right, I repeat, does society consign this innocent irresponsible to an environment that can only foster evil tendencies? The penitentiary is for him but an advanced training school for vice, from which, after a term of years, he goes out branded, with no other inclination, too often with no other resource, but to repeat a former experience, being now in tenfold degree a menace to the social welfare.

It is not for the mother whose child is dead for whom we should feel the deepest sympathy, but rather for her who lives in the valley of sorrow, and who never can bury her dead out of sight nor know true peace until her boy has passed to that far country where dreams come true, where griefs are changed to joys, and hopes to realities.

CHAPTER XXI.

STORIES OF THE CHILDREN.

THE following tales are told, not so much with a view to entertain as from a desire to show the mother wit of which even mentally feeble children are not devoid. The compositions and letters illustrate in a fair degree the results attainable through special training: the peculiar mental condition is evidenced in some, while others show the instability of thought and purpose.

My predecessor, Dr. Isaac N. Kerlin, one day during Sunday-school, was relating, in a graphic manner, the story of Joseph and his brethren, and waxing eloquent, as the climax approached, he questioned: "Children, what did Joseph say when he saw the long line of his returning brethren?" Immediately one little fellow, of high-grade—the page who received and ushered in guests—piped up: "I know. He said: just walk into the parlor, gentlemen, and I will speak to the matron."

On another occasion, repeating the text: "Come unto Me, etc.," the Doctor gravely asked: "Who said that?" The large hall was quiet, and his voice rang clearly a second time: "Who said that?" Still no response. Then looking down the hall and pointing to a group of boys, again he demanded in louder tones: "Who said that?" "I don't know," shouted back a low-grade boy, "but I didn't."

On yet another occasion, at evening prayers, Dr. Kerlin quoted the text: "In my Father's House, etc.," and told the children he would call on some one to repeat it at the Sunday service. When the call was made no one ventured to reply. The silence was growing embarrassing, when a low-grade stammering boy unrolling himself like an anaconda, growled out: "In my Father's house are magic lanterns, and if it hadn't a bin so, I just wouldn't 'a tole you nothin' about it."

Once while making my rounds, I found a girl of low-grade, weeping bitterly. Upon inquiring the cause she sobbed out: "Oh Doctor, I believe I'm crazy. If I die, won't you cut my head open and see if there is any sawdust in my brain?" Then brightening up somewhat, she added: "Won't you have Company A march to my funeral and have the band play 'Safe in the Arms of Jesus'?"

The assurance that the funeral should be all that she desired soon restored her accustomed cheerfulness.

A low-grade girl, on account of her boisterous language and persistent disobedience, was a great trial to all in charge. I was the only man with whom she came in contact—all intercourse between the boys and girls being absolutely forbidden—and notwithstanding her many disciplinings, she was, after each lapse, always eager to regain my good opinion. Once, after a particularly stormy day that had worn out both her attendants and herself, she was overheard to add, after faltering through her evening prayer: "Now, Lord, please don't allow Dr. Barr to be bad friends with me, for you know, dear Lord, how hard it is to keep a gentleman friend in this place."

A number of little boys of high grade, ranging in age from 7 to 10 years, determined to be very naughty, and refusing to obey were given only bread and milk for one entire day, as a means of discipline. At bed-time, one of the ring leaders, with the face of an angel, asked if he might say a prayer for the club. Permission being granted, he offered the following: "Dear God, please make us boys all good to-morrow, speak the truth, be obedient and good to our teachers, mind our attendants, and be good for everybody. We have been in so much trouble. For Christ's sake, Amen."

A high-grade boy, who had given much trouble to friends at home, with us under supervision did excellent work. At the close of the school-year, his father on taking him home for vacation requested me to impress upon him that I was willing for him to remain only two weeks. This I did, and he seemed entirely satisfied. On the twelfth day, I was called to the 'phone by Mr. A., who said that his son had given so little trouble, and was so obedient that he had determined to keep him at home for six weeks. I replied that of course the matter was in his own hands, and that he could do as he pleased. Thanking me most effusively for my interest in his son, he added: "He has been smoking a little, contrary to orders I know, but I could not be too strict, for boys will be boys." To my surprise the boy returned on the fourteenth day as was first decided, and greeted me with: "My little scheme didn't work, did it? I was talking through the 'phone and you thought it was father; but he wouldn't let me stay."

A middle-grade boy with intercurrent insanity, imagining that he was the president of all the railroad systems in the United States, had a passion for writing passes. On one occasion, some members of a theatrical company coming out to give a performance, John was very much pleased with the one who played the part of Romeo and meeting him the next day, he presented him with a life pass over

all the railroads. A few days later he met another man who asked him for a pass, and he gave him one for fifty years. Upon being reminded that he had issued to the other a pass for life, the boy replied: "Oh! it is the same thing. I have given you one for life; you look as if you wouldn't live fifty years."

At the customary weekly inspection, the boys after their bath, attired in their best suits, are lined up for a careful overlooking. One day, in response to the order, "Right foot up," a middle-grade boy lifted his left foot. The order was repeated with the same result; again it was repeated, and the left foot came up as before. Being asked if he did not know his left from his right foot, he replied, indignantly: "Certainly I do." "Then why do you raise your left foot?" "I didn't," he said; "I am left-handed, and if I am left-handed I use my left hand as my right hand, and I lift my left foot because it is the right foot." Such logic was not to be controverted.

A boy of low grade upon seeing a picture of Cupid, covered his eyes, exclaiming: "Shame! Shame! Go put overalls on him."

Another boy was one of a class shown at a clinic, as a pronounced moral imbecile of low grade. A few days later, during a quarrel, a companion said: "Harry you're a bad boy." "I'm not," he quickly retorted, "I'm Dr. Barr's little margle ingersoll."

A low-grade girl one day said to the assistant matron, whose mother was in charge of that department: "Miss Carrie, I do like you. You're all right, but I hate your mother. She knew how to raise you, but she didn't know how to raise herself."

This same child, friendless and dependent, was therefore compelled to wear the "cast-off" clothing of the more fortunate children. With a keen appreciation of color this was often a great cross, and one day given a dress the color of which she disliked, she said, sighing: "My! what a nice thing it must have been to have lived after Adam and Eve! No one would have had to wear their cast clothes."

One stormy night I was summoned to the reception room, and upon entering, was greeted by a boy of 12 years, who rose and held out his hand in the most cordial manner: "Dr. Barr, I presume. I am H. H. who was to come to you. I just thought I would not wait for my father, and so I walked off. I had some money and begged a little, and here I am. Just telephone to my father, will you? His number is —. I am afraid he might be worried." Thus he entered himself, and his father, coming the next day, completed the arrangements. He proved quite troublesome, although his improvement, in time, was marked. Of this, he himself was only too conscious, and when corrected for any offense, he would turn

and say, with the beaming smile which was his chief stock in trade, and was used to cover a multitude of misdemeanors: "Yes, I know I am naughty; but I have improved so much."

A high-grade boy upon being rebuked for a misdemeanor, replied: "Well, I'm not responsible for what I do, I'm feeble-minded." Nevertheless he found that he was held up to a certain degree of responsibility.

A club of boys, all high-grade, averaging 12 years, had very sweet voices but were too lazy to sing at evening prayers and at the Sunday service, and maintained silence notwithstanding repeated reprimands. Finally on a Saturday afternoon, after the bath they were put to bed on bread and milk until they should find their voices; Saturday being the evening of the weekly dance, absence from "Hall" was discipline most severe. The night passed quietly; not a sound from the dormitory, where on going through I found every eye fast closed and all apparently sleeping the sleep of the just. On Sunday morning the whole house was filled with melody: hymns, songs—sentimental and comic—everything went! Upon entering the dormitory I found each boy perched upon the foot-rail of his bed, all singing and balancing themselves in time to the music. Even a semi-mute who could speak only a few words was doing his best. The voices had been found and thenceforward there was no more trouble.

A girl of middle-grade, given to over-indulgence in good things, had in consequence frequent attacks of indigestion which she called "disasters." Early in my experience, going with a co-assistant over his building, prior to taking his duties, while he was absent on vacation, he instructed me in regard to Mary's treatment during a "disaster." Overhearing this, Mary volunteered: "Doctor you needn't do that. Dr. Barr is so young and unexperienced that I'm afraid he'll not know how to treat me. So I won't have a disaster, 'till you get back or I may die." And she didn't; but she was his first patient on the evening of his return.

At Christmas, we try to give the children anything, within reason, that they particularly desire. One middle-grade boy sent in his list thus: "A bottle of bear's grease, a set of false teeth, and a Bible." He got all three, but the teeth were put away carefully in a box for safe-keeping and worn only on Sundays and on holidays.

John, an active middle-grade boy of 12, always in some scrape, was devoted to manual occupations and, eager for praise was intensely jealous of anyone who gained it. Hearing his teacher one day commending a comrade, he exclaimed in a tone of disgust: "Humph! Humph! You think Miles is a good deal better than me, but you'll see. When you get up there," pointing upwards,

"you'll not find Miles with you. He'll be down there," pointing downwards, "with me. That's where he'll be."

The possibility that positions might be reversed never seemed to occur to him, and his quietly placing his teacher without question among the angels, she found very amusing. Evidently John was quite willing to go to his own place, if only he could find the other fellow there too.

Josiah was an epileptic of middle-grade, who found great delight in a monotonous reading aloud of the Scriptures. One day, upon being reproved by his mother unduly as he thought, although in gentle Quaker fashion, he hastily interposed: "There, there, mother. Don't thee talk any more. Let motherly love continue." On another occasion, disappointed in receiving a promised gift, he querulously complained: "I want her to send it even if I die." "What," said the mother, "if thee go to Heaven? How can she get it to thee?" "She can send it." "But suppose thee goes to the other place?" "Oh! then she can bring it to me," was the quick reply.

Eddie had broken his arm, and the fracture was so severe that it was proposed to give him ether. He had borne the pain bravely, but now began to cry. When asked why he was crying, he replied: "Why what's the use of having a broken arm if you can't see it set?" We didn't give the ether, and the most interested observer of the operation was the patient himself.

A high-grade boy aged 16 years, a member of the carpentry class, was asked by the other boys to draw up a program for an excursion "just for fun," and he evolved the following without assistance:

PERSONALLY CONDUCTED
TOUR

BY THE C. S. G. OF P. T. S.

WEDNESDAY, JULY 16, 1903.

TO CLAYTON, DEL. & RETURN

7 A. M. TO 10 P. M. INCL.

FARE, ROUND TRIP, $200.00

ALL HOTEL BILLS AND OTHER EXPENSES PREPAID

TICKETS ON SALE AT BOX-OFFICE.

Charles Viscidi, General Manager
William H. Ertel, General Passenger Agent

AMUSEMENTS

CALATHUMPIAN BAND

Solo Violinist,	A. Parrillo
Cornetist,	H. Simmington
Snarum Drummist,	W. Bibby

BILL-OF-FARE

Shingle Sandwiches	Fir Board Sawdust Pudding
Grindstone Soup	Curtain Bracket Salad
Fencepost Croquettes	Chisel Chowder Coal-oil Custard
Red Oak Oatmeal	Planed Potatoes with Sandpaper-Dressing
Bevel Square Shortcake	Cylinder Oil Soup
Jute Rope Cigars	Preserved Sawse
Lath Lemonade	Screwdriver Cigarettes

Round Robin Cakes
Sixty-Penny Tooth-Picks

Schooners and Other Vessels Unloaded to Order

V. ROCKWOOD,
Chief Cook and Bottle-Washer.

The following verses are by two high-grade boys, aged respectively, 16 and 13 years.

ELWYN DAY

Elwyn Day will soon be here
It only comes once a year.
We hope it dawns bright and clear,
For that will fill us full of cheer.

We have worked hard in High-grade A,
And tried to make a fine display,
Our papers for the month of May
Will soon be done and put away.

We have all done them with might
And tried to make them look just right,
We try to keep them clean and bright
And hope they'll make a pretty sight.

The band will be in full array
And on the campus they will play;
All the people dressed so gay
Will come to see our Elwyn Day.

We are glad when the day is done
And from the drill hall we will run;
And when our task is done
Then it will be nothing but fun.

F. W.

KEYSTONE HALL SAYINGS FROM 7 TO 8 O'CLOCK.

"I want this Hall to come to order,"
Says Miss Kneed to every boarder.
"Washington, Liberty, and Crozer in line,
Keep quiet, boys, for this Hall is mine!"

"There is no dancing for the boys to-night,
For you turn back—you turn left and right.
I want all the boys now to sit down,
This Hall is not dirty, but varnished brown."

"I hear the talking still going on;
You boys start your acting as soon as I am gone.
I want that boy sitting beside Sam Pell
To go over to Miss McFeeley's Hotel."[1]

Now comes the mail in Keystone Hall,
Then Dr. Barr the names will call:
"E. P. Waller, Ben Ridd, and Edward Kay.
Boys! Boys! what do you mean by making such a noise to-day?"

E. W.

Three boys, all of high-grade, aged respectively, 9, 10, and 11 years, wrote the following compositions unassisted.

My Favorite Character in History.

I think I like Lincoln's character the best.

The reason is because he was very studious, and a very quiet man, he always tried to do the best he could in every way. He was honest, loving, kind-hearted, brave, courageous, and helped his people in many ways. He helped in many things in the Civil War, he did nearly all the writing for the people.

He used to read the few books over and over again, the way he gained so much knowledge was by reading his books over and over again. There were no schools during that time. He studied fifteen hours every day, that is three times as much as we study. After awhile he got employed, and got a half a dollar a day. He thought that a great deal.

He was beloved by every one, and when he died, not only our people were sorry but whole Europe was too. Because Mr. Booth's brother killed Lincoln, his band has never played there since.

S. H. J. L.

My Favorite Character in History.

I think Benjamin Franklin was just as good as any other great men of his days. He knew his own business and tended to it. The way he saved money was like this. When his father apprenticed him as printer to his brother, he told his brother if he would give him half of what his board cost he would get his own food. He bought a biscuit or tart to eat, and the rest he saved to buy books with. While the other people were eating their meals he studied. When he was in England (if he had drank beer with his other

[1] The boys' name for the infirmary, where they are punished in bed.

companions) he probably might not have been heard of to-day. His father used often to say an old proverb to him, viz., "Seest thou a man diligent in his business? he shall stand before kings." He was presented to five different kings before he died. R. A. R. P.

MY FAVORITE CHARACTER IN HISTORY.

In a great many ways I like William Penn the best; although I like nearly all the rest of the men whom you learn about in history. The reason I like Penn is because he always was so good to the Indians. I always liked to hear the story where Penn made the treaty with the Indians; also the story where he was put in prison for preaching in the street.

I always felt very sorry for him. J. K. I. E.

The writer of this is a high-grade boy, aged 14, fond of attracting attention.

"EYWYN, PA., February 11.

"To M. & Co., NEW YORK, N. Y.

"*Dear Sirs:* I am exceedingly interested in patents, all the time and been studying out plans of new scientific.

"Write and let me know at once if there is a copyright or patent on a book called 'The Pictorial Atlas of Pennsylvania.'

"I have it half written. Besides I am working on many other things, but cannot decide witch one to start with.

"I hope you will grant my request and send me a hand-book on patents 'free' as you advertise in the 'Popular Educator.'

"Yours Res.,

"E. W. H.,

"Elwyn, Del. Co.

"Pennsylvania, U. S. A."

The following letter was written by a middle-grade boy, epileptic, aged 17, with fair reasoning powers:

"ELWYN, PA., July 31.

"MY DEAR FATHER:

"I wish you would leave me come home for my birthday which is not far off. It comes on the 25th of September, which is Thursday. There is one question I wish to ask you and it is this: if I ask you to take me home, you say you haven't the money and if I run away why you seem to have it to bring me back, and that is what puzzles me. I only wish I could spend just one month with you, I would be more than satisfied, and you know I have been here exactly 9 years and haven't been home in a decent way yet, and

I guess I never will. If you can't give me a little change, I will have to make it myself, I will never show my face near home, and you can depend upon it. From

"Your unthought of Son
"H. F. W."

The three following letters are by a high-grade boy aged 15, who, most erratic, has a very vivid imagination.

"MISS J:

"Here is one thing that I want to be successful in a short time from now:—I contemplate a running-away club to different parts of the United States and also to the Philippines. I want all the boys who are in favor of starting this club to-day, to stand up and I will put down the names and do not be afraid to stand up. I want Miss J. to send notices out to the attendants and notify of this great time. Here are the reasons:—For more liberty, more independence, more sight-seeing of this wide world, more walks, exceeding 20 miles a day regardless of everything and a few more things. I want this to be a very secret affair and please do not fail to vote now. Every club is represented and the thing is that I want you to take notice and vote for this runaway club.

"Please read this out loud and tell them what I want them to do."

"ELWYN, DELAWARE CO., PA., Wed., November 28, 1900.

"DEAR FATHER:

"I received your letter and was very glad to hear from you. I am getting along all right and feel pretty well. I get good food. We are getting ideal foot-ball weather in the United States now. Sometimes it is stormy, miserable and dreary out of doors. A foot-ball game will take place to-morrow and it is likely that there will be a very large crowd to witness the game. If we get defeated it will prove a severe blow to the foot-ball players of this place. There are 11 men on the Elwyn team and they are tough and strong. It is very dangerous to be in a hotly contested game of foot-ball. Several fellows are killed every year. I have not written yet to Horace or to Myrtle as the time is very precious here. I am in Liberty Club and it consists of boys who behave and work. Here is the program that everybody must obey: 5.30 A. M. get up, dress, wash and turn beds over, 6.30 A. M. go to breakfast which lasts 30 minutes. 7:15 to 8:30 A. M. daily dry-scrub, 9:00 A. M. to 12:00 noon school, 12:30 P. M. to 1:00 P. M. dinner which lasts 30 minutes, 1:00 P. M. to 1:50 P. M. dish washing by some clubs. 2:00 P. M. to 4:00 P. M. school, 4:00 P. M. to 5:00 P. M. play-hour, 5:30 P. M. to 6:00 P. M.

supper which lasts 30 minutes, 6:00 P. M. to 6:50 P. M. dish-washing by some clubs. 7:00 P. M. to 8:00 P. M. do different things, 8:00 P. M. go to bed, 9:45 P. M. reporting time every night, 10:00 P. M. to 5:00 A. M. next morning, night watches. The people of this country are very busy and better still, McKinley and Roosevelt got elected by a large vote. The Democrats were defeated and free silver is dead. Prosperity has revived considerably, and the people are for McKinley, sound money, prosperity and good times. I hope you will answer this just as soon as you get it. It is a long time since I heard from Mrs. N., and I think that the letter was mailed to somebody else in mistake. I will close now as it is almost noon.

"Yours truly,

"F. G. W."

"ELWYN, DELAWARE COUNTY, PENNSYLVANIA.

"DEAR PAPA:

"I am very sorry to keep you waiting for a long time. I am here at this training school at last and I like it very much. The people are taking good care of me and are giving me excellent food and attention. Do you feel lonely in the Philippines now? Write me a long description of your voyage and tell me all about the people, their customs, habits, religion, scenery, climate of the Philippines, etc., and do not worry about me. What year are you coming home from the Philippines? Are you coming home next year (which is 1905)? I feel very well but I do not feel glad. I feel very moody and feel disagreeable about anything. Nothing under the sun does not seem to please me and my thinking powers are all dead. I feel like escaping from this school and make my way towards New York and get on a steamer and then get to Manila some way. This letter is being written on February, the eight instant and it is 10.20 A. M. and it is about 12.30 A. M. night at Manila now. What are you doing at Manila now? I am determined that I am going to spend a week or ten days' holiday at Whitehall on account of my birthday. Please don't fail to send me something from Manila. I would rather have something alive to be sent from Manila as a Philippine chicken or cock. When you come home I want you to buy me a large flock of chickens (including some many roosters) and some other animals and do not fail to buy me these animals. Virginia and Mrs. A. are very bad enemies and I hope you a happy year. The Japanese and the Russians are having quite a war and it looks very dark for both nations. Baltimore is having a tremendous fire and the loss is many million dollars and Philadelphia had a tremendous conflageration on November 29, 1899, and destroyed property valued at $2,000,000.

Please answer this letter immediately and don't fail to send me something interesting from Manila. Do you wish that I was with you at Manila? I wish that I was at Manila now and time is going very rapidly, it will not take very long for 1905 to come now but I want time to pass very slowly for me. Mrs. N. and I are very great friends now; even if we are separated we still can be friends. I am going to walk to Philadelphia some day soon and the people may let me go to Philadelphia. I may get to Manila some day soon and there is no use of me staying at this school one year or two months. I feel discouraged about everything now and my future may be a black one. I lost my pocket-book and feel angry. You may in all probability will have to stay at Manila about ten years and I expect to be a discouraged man and nobody does not seem to take care of me now. I want to be a great man and I will close now.

"Good bye for a time,

"Your friend,

"F. W."

"N. B.—Please try with your utmost power to make me to be glad and try to give me a warning about everything and I want God to make me glad and try to make my life a happy bright one on this earth."

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